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ON A COLLECTION OF ORTHOPTERA (EXCLUSIVE OF THE LOCUSTIDÆ) MADE IN CENTRAL PERU BY N. ICONNICOFF AND C. SCHUNKE

BY A. N. CAUDELL

The material upon which this report is based was submitted to the writer for determination under an agreement by which holotypes, allotypes, and uniques in the Tettigonidæ and Mantidæ and a male and a female of each species in duplicate in the other families represented are deposited in the collection of the United States National Museum, all the rest of the material to be returned to Mr. Iconnicoff.

The Dermaptera, as represented in this material, consists of a single specimen. If others were taken and sent elsewhere for determination, or if the single specimen herein included constitutes the whole of this group represented in the collection, is not known to the writer. The first surmise, however, seems the more likely.

The Blattidæ of this collection were reported on by the late Mr. Shelford.¹ A few of these roaches, for some reason not submitted to Mr. Shelford, were sent with the other material here reported on, and will be found included at the proper place.

The Mantidæ and Phasmidæ are moderately represented and the Gryllidæ somewhat better so, but the Tettigonidæ, especially the Pseudophyllinæ and the phaneropterous genus *Anaulacomera*, form the most interesting portion of the collection.

¹ Rev. Russ. d'Ent., vol. xii. pp. 27-34. figs. 1-5 (1912).

Many apparently new forms are represented in this material, as was also the case in the Blattidæ, as shown by Shelford's report on that group. A number of described forms are species not before reported from Peru, being extensions from the north and east up the valleys of the Amazon and its tributaries.

The proportion of new species recognized in the present collection is approximately the same as that in the collection made by the Yale Peruvian Expedition of 1911,¹ but not a single form described as new from these two collections is represented from both localities. This, however, probably signifies but little, as these localities are some 200 miles apart and may comprise very different regions. It may prove that many sections of this interesting portion of Peru, owing to their separation by mountain ranges, etc., have each its quota of undescribed forms, some incipient and others well differentiated from allied species. But many years will probably pass before much information regarding such matters will be acquired. At present we can truthfully say of the Orthoptera as a whole what Shelford states of the Blattidæ—we are still singularly ignorant of the Peruvian fauna.

Specific locality labels are not attached to the specimens herein reported on, each bearing only the locality by longitude and latitude, this in every case being 75° 17' W. of Greenwich, 11° 3' S. lat. This locality, being common to every specimen in the collection, is not repeated in the following pages, but in every case the date, usually the month and year, rarely the day also, but often only the year, is given. The name of the collector is also always stated. In the case of species described as new the disposition of the specimens is specifically stated. Paratypic material is recorded by letters a, b, c, etc., in order to facilitate reference to particular paratypes when necessary.

The sequence of arrangement is according to that of Kirby's Synonymic Catalogue of Orthoptera and the references quoted are usually confined to that work and to the place of original description.

¹ Proc. U. S. Nat. Mus., vol. xliv, pp. 347-357 (1913).

Order DERMAPTERA

The single specimen of this group turned over to me for determination proved to be as follows:

Pyragra dohrni Scudder.

Thermastris dohrni Scudder, Proc. Bost. Soc. Nat. Hist., vol. xvii, p. 280 (1875); *Pyragra dohrni* Kirby, Syn. Cat. Orth., vol. i, p. 7 (1904).

Pygidicrana peruviana Rehn, Proc. U. S. Nat. Mus., vol. xxix, p. 501, Fig. 1 (1905); Burr, Proc. U. S. Nat. Mus., vol. xxxviii, p. 445 (1910).

One ♀, November, 1908. Schunke.

This specimen, which is not in good condition, the antennæ and most of the legs being missing, was compared with Scudder's type of *dohrni* and found to agree. It also agrees perfectly with the type of *Pygidicrana peruviana* Rehn in the National Museum. This specimen is returned to Mr. Iconnicoff.

Order ORTHOPTERA

Family BLATTIDÆ

Nyctibora brunnea Thunberg.

Blatta brunnea Thunberg, Mem. Acad. Sci. St. Petersburg, vol. x, p. 278 (1826); *Nyctibora brunnea* Shelford, Trans. Ent. Soc. Lond., p. 467 (1908); Wytsman's Genera Insectorum, Fasc. 74, p. 2 (1908).

Nyctibora holosericea Burmeister, Handb. Ent., vol. ii, p. 502 (1838); Kirby, Syn. Cat. Orth., vol. i, p. 107 (1904); Shelford, Wytsman's Genera Insectorum, Fasc. 74, p. 2 (1908).

Nyctibora obscura Saussure, Rev. Zool., (2), vol. xvi, p. 316 (1864); Kirby, Syn. Cat. Orth., vol. i, p. 2 (1904).

One ♂, November, 1908; one ♀, April, 1909. Schunke.

This species, as identified by the writer, is very close to *mexicana* Saussure, the principal difference appearing to be the color of the femora, which in these Peruvian specimens here referred to *brunnea* are yellowish or reddish brown, while all specimens of *mexicana* seen have had the femora piceous.

Thunberg's name *brunnea* was not listed in Kirby's catalogue.

Paratropes æquatorialis Saussure.

Paratropes æquatorialis Saussure, Rev. Zool., (2), vol. xvi, p. 309 (1864); Kirby, Syn. Cat. Orth., vol. i, p. 109 (1904).

One ♂, one ♀, October 11, 1908; two ♂ ♂, November, 1908; three ♀ ♀, January, 1909. Schunke.

This species, as here determined, superficially resembles *P. mexicana* Brunner but the abdomen is almost entirely black beneath while in *mexicana* it is distinctly bordered with yellowish. The inner margin of the apical infuscation of the wings of *æquatorialis* is nearly straight (Pl. I, fig. 1), the infuscation nearly or quite covering the whole apical half of the ulnar area. In *mexicana* this infuscation covers only the apical fifth or sixth of the ulnar area and the inner margin of this darkened area is considerably curved (Pl. I, fig. 2).

Paratropes pica Walker.

Paratropes pica Walker, Cat. Blatt. Brit. Mus., p. 151 (1868); Kirby, Syn. Cat. Orth., vol. i, p. 110 (1904).

One ♀, October, 1908. Schunke.

This specimen agrees exactly with the original description and with the colored figure given by Mr. Shelford in Wytsman's Genera Insectorum, Fasc. 74, plate 4, fig. 10 (1908).

Epilampra conspersa Burmeister.

Epilampra conspersa Burmeister, Handb. Ent., vol. ii, p. 505 (1838); Kirby, Syn. Cat. Orth., vol. i, p. 126 (1904).

One ♂, October, 1908. Schunke.

Panchlora peruana Saussure.

Panchlora peruana Saussure, Rev. Zool., (2), vol. xvi, p. 342 (1864); Kirby, Syn. Cat. Orth., vol. i, p. 153 (1904).

Three ♀ ♀, September and November, 1908, and April, 1909.

Panchlora moxa Saussure.

Panchlora moxa Saussure, Rev. Zool., (2), vol. xiv, p. 231 (1862); Kirby, Syn. Cat. Orth., vol. i, p. 153 (1904).

Two ♀ ♀, December, 1908, and January, 1909. Schunke.

Family MANTIDÆ

Choeradodis laticollis Serville.

Choeradodis laticollis Serville, Ann. Sci. Nat., vol. xxii, p. 51 (1831); Kirby, Syn. Cat. Orth., vol. i, p. 220 (1904).

One ♀, September 20, 1906. Iconnicoff.

Acontista westwoodi Saussure and Zehntner.

Acontista westwoodi Saussure and Zehntner, Biol. Cent.-Amer., Orth., vol. i, p. 134 (1894); Kirby, Syn. Cat. Orth., vol. i, p. 233 (1904).

One ♀, November, 1908. Schunke.

Liturgousa lichenalis Gerstaecker.

Liturgousa lichenalis Gerstaecker, Mitth. Ver. Vorpomm., vol. xx, p. 52 (1889); Kirby, Syn. Cat. Orth., vol. i, p. 271 (1904).

One ♀, October, 1908. Schunke.

Macromantis ? sp.

One immature ♀, August 10, 1906. Iconnicoff.

No more than a questionable generic determination can be safely made of this nymph.

Pseudomiopteryx bogotensis Saussure.

Pseudomiopteryx bogotensis Saussure, Mitth. Schweiz. Ent. Ges., vol. iii, p. 228 (1870); Kirby, Syn. Cat. Orth., vol. i, p. 275 (1904).

One ♂, November, 1908. Schunke.

Acanthops erosula Stal.

Acanthops erosula Stal, Bihang Svenska Akad., vol. iv, (10), p. 90 (1877); Kirby, Syn. Cat. Orth., vol. i, p. 283 (1904).

One ♀, August, 1908. Schunke.

This species was originally described from Peru but no mention is made of that locality in Kirby's catalogue.

Oxyopsis acutipennis Stal.

Oxyops acutipennis Stal, Bihang Svenska Akad., vol. iv, (10), p. 71 (1877); Kirby, Syn. Cat. Orth., vol. i, p. 298 (1904).

Oxyopsis actuiipennis Giglio-Tos, Boll. Mus. Torino, vol. xxix, No. 684, p. 15 (1914).

One immature ♀, January, 1909. Schunke.

This specimen is apparently in the last instar.

Stagmatoptera ? sp.

One small nymph with the end of the abdomen missing. March 9, 1906. Iconnicoff.

Family PHASMIDÆ

Libethra rollei Brunner.

Libethra rollei Brunner, Die Ins. Fam. der Phasmiden, p. 306 (1907).

Four ♂♂, October 11, November 8 and 21, 1906. Iconnicoff.

These specimens have the second segment of the abdomen nearly or quite three times as long as broad, indicating a relationship with the genus *Dyme* rather than *Libethra*. But they agree with the description of *L. rollei* and Brunner includes it in his key to the species of *Dyme* as well as that of *Libethra*, showing that he also recognized its relationship to both these genera.

There is some variation in the measurements of these four specimens, the fore femora varying from 16 to 19 mm. in length.

Libethra peruana, new species.

This is a moderately stout form of a brown or blackish color which runs out in the key to species in Brunner's monograph¹ to *L. rugosa* Brunner, but it possesses several characters separating it from that species as described by Brunner, the most obvious one being the ventrally lobed femora. Nor does the description of *rugosa* mention the prominent dorsal flange in the posterior margin of the sec-

¹ Die Ins. Fam. der Phasmiden, p. 305 (1907).

ond abdominal segment so noticeable in this species here described.

Description (♀, the ♂ unknown).—Head slightly flattened above and densely covered with acute tubercles, usually with two groups, each comprising one larger tubercle with some smaller ones, between the eyes standing forth a little more prominent than the others. Eyes small, moderately prominent; ocelli not evident. Thorax indistinctly carinate, rugose and tuberculate, the pronotum furnished above on the posterior margin with a pair of blunt spines or acute tubercles, distinctly longer and more conspicuous than the others. Abdomen subcylindrical; median segment distinct, transverse; third, fourth, fifth, and sixth abdominal segments multicarinate, the carinæ distinct but low and nearly straight; second segment with a somewhat conspicuous expansion on the posterior margin above; first, third, and fourth segments with a small V-shaped expansion at the same location; seventh and eighth segments furnished above on the posterior margin with a pair of longitudinally disposed swellings, the pair on the seventh segment the larger; operculum failing to reach the tip of the abdomen and angularly emarginate apically. Legs stout, the fore femora conspicuously curved basally and a little longer than the mesonotum; all the femora and tibiæ are more or less foliate above and the femora of the middle legs especially have a couple of very noticeable expansions on the ventral margins, these expansions extending out laterally from the femora, those on the cephalic margin being the larger; the posterior and intermediate tibiæ have one or two small foliations beneath. Cerci short, less than twice as long as broad, scarcely surpassing the last abdominal segment.

Measurements.—Length, total, 55 mm., mesonotum, 13.5 mm., fore femora, 15 mm., hind femora, 15 mm.; width, mesothorax at middle, 4 mm., median segment, 5 mm.

Described from four ♀♀. Type and paratype a, December 4, 1906. Iconnicoff. Paratypes b and c, August and September, 1908. Schunke.

Type and paratype b in Iconnicoff collection; paratypes a and c in collection of the United States National Museum.

Cat. No. 21321, U. S. Nat. Mus.

Sermyle sp.

Two ♀ nymphs, one without date and one taken December 12, 1906. Both by Iconnicoff.

These specimens are not in good condition and this, together with their immaturity, makes an attempt at a specific determination inadvisable. The legs are lobate and the thorax and abdomen are furnished with lateral expansions. The head is armed on the occiput with a pair of flattened hornlike projections.

The type of *Sermyle* by designation of both Rehn, Proc. Acad. Nat. Sci. Phila., p. 51 (1904), and Kirby, Syn. Cat. Orth., vol. i, p. 345 (1904), is the *Ceroys mexicanus* of Saussure. Brunner, Die Ins. Fam. der Phasmiden, p. 315 (1907), places this species in his new genus *Ocnophila* and, on page 333 of the same work, indicates without comment that Stal, the author of *Sermyle*, misidentified this species, and he described what he considers Stal really has as a new species, *praetermissus*. But it is unimportant whether Stal made a misidentification or not as *mexicanus*, having been properly designated as the type of *Sermyle*, is the type according to the rules of the Entomological Code and by the recent decision of the International Commission of Zoological Nomenclature to the effect that the misidentification of a species by the describer of a genus does not affect the eligibility of that species as a genotype. Thus the genus *Ocnophila* Brunner is a synonym of *Sermyle* Stal unless it proves to be composite, in which case the name can be used for those species not congeneric with *mexicanus*. And it seems very likely that there are two generic groups comprised in the species treated under this generic name by Brunner. This is indicated by the fact that many forms included here have the metatarsus of the anterior tarsi as long as the rest of the segments together while others have this segment but one-half the combined lengths of the others.

The species with long metatarsus would run out to Brunner's genus *Parapygirhynchus* if the anal segment of the female is produced. But if this segment is truncate it would constitute a separating character for the genus *Ocnophila* except that it is a secondary sexual character and such characters are usually deemed undesirable for generic differentiation. Without more material in the forms concerned the task of separating *Ocnophila* from *Scrmyle*, or the responsibility of sinking the former in synonymy, must be left for some future consideration.

Bacteria virgulata Redtenbacher.

Bacteria virgulata Redtenbacher, Die Ins. Fam. der Phasmiden, p. 420 (1908).

One ♂, December 9, 1906. Iconnicoff.

Pseudophasma urazi Bolivar.

Phasma urazi Bolivar, Actas Soc. Espan., vol. xxv, p. 13 (1896).

Pseudophasma urazi Kirby, Syn. Cat. Orth., vol. i, p. 412 (1904).

One ♀ and one nymph, November 10 and December 11, 1906. Iconnicoff. Two nymphs, November, 1908, one ♂, January, 1909, and one ♂ and one ♀, without date. Schunke.

Dyme mamillata Brunner.

Dyme mamillata Brunner, Die Ins. Fam. der Phasmiden, p. 323 (1907).

One ♂, November 10, 1906. Iconnicoff.

This specimen agrees very nicely with Brunner's description and runs out properly in his keys.

Dyme nigrolineata Brunner.

Dyme nigrolineata Brunner, Die Ins. Fam. der Phasmiden, p. 325 (1907).

One ♂, November 24, 1906, and two nymphs, November 8 and 29, 1906. Iconnicoff.

These specimens run out to this species in Brunner's keys and agree with the short diagnosis except the antennæ show no distinct annulation, though it is basally somewhat darker, especially above. While the type locality, Surinam, is a long

distance from where these specimens were taken, I can not, nevertheless, from the data available, consider them other than this form.

There are also four ♀ specimens in the collection which are referred here with some doubt. Three were taken by Iconnicoff, November 7 and 18 and December 10, 1906, and one by Schunke, November, 1908. They vary in color from dark brown to greenish and the abdominal segments are multicarinate above. The cerci are short and stout, projecting but little beyond the end of the abdomen. The operculum fails to reach the end of the body and is apically entire with a small median triangular tooth. The second segment of the abdomen is distinctly longer than broad but scarcely twice as long. Measurements of the most perfect specimen are: Length, total, 43 mm.; mesonotum, 11 mm.; fore femora, 13 mm.

Dyme iconnicoffi, new species. (Pl. I, fig. 3.)

This apparently undescribed form seems to be the most nearly allied to *Dyme ingenua* Brunner from Brazil but is smaller and the posterior femora attains to the tip of the sixth abdominal segment.

Description (♂, the ♀ unknown).—General color entirely dark brown, the antennæ and the fore tibia, especially in apical portion, tending toward reddish or yellowish brown. Entire body, head, thorax, and abdomen somewhat densely covered with small tubercles with a few larger yellowish brown blister-like swellings on the mesonotum and metathorax. Head somewhat longer than the greatest width, much broader in front than behind and very little flattened above; eyes round and prominent; ocelli not evident except as represented by lighter spots; antennæ long, the first two segments enlarged, the first somewhat flattened as usual. Pronotum dorsally flattened, the disk about twice as long as broad with crossed sulci in the middle; meso- and metanotum cylindrical, enlarged at the ends, the former considerably longer than the latter; median segment distinct, scarcely longer than broad. Abdomen almost parallel sided

to the apical three segments which are moderately expanded, especially the seventh and eighth; the terminal segment is apically notched, about as broad as long, rounded above with a distinct straight median carina and a very obscure roundly divergent ridge on each side; supraanal plate concealed, as are also the cerci, which are stout, subcylindrical, apically swollen, incurved organs, apically rounded and covered with short hairs; operculum¹ prominent, short. Legs slender; all the tibiæ and the posterior and intermediate femora with one to three or four small expansions above; tibiæ without apical arolia beneath; tarsi moderately slender, the metatarsi distinctly shorter than the rest together except that of the hind leg where it is about as long; femora unarmed beneath, the anterior ones a little curved basally and somewhat longer than the mesonotum; posterior femora reaching to the tip of the sixth abdominal segment.

Measurements.—Length: Total, 55 mm.; mesonotum, 14 mm.; metanotum, 8.5 mm.; median segment, 1.5 mm.; anterior femora, 17 mm.; middle femora, 12 mm.; hind femora, 16 mm.; anterior tibiæ, 20 mm.; middle tibiæ, 15 mm.; posterior tibiæ, 21 mm.

Described from one ♂, December 12, 1906. Iconnicoff.

Type in collection of Iconnicoff.

Acanthoclona flavicornis, new species. (Pl. I, figs. 6,7.)

This form is allied to *A. immanis* Scudder, with the type of which it has been compared, but it is clearly distinct from that species. The yellow antennæ are apparently distinctive, such coloration not being mentioned in the descriptions of allied species.

Description (♂, the ♀ unknown).—Head elongate, diagonally attached and the surface deeply rugose and tuberculate, the occiput armed with a pair of divergently erect lamellate expansions which are twice as long as broad and armed apically and along the margins with stout erect spines;

¹ Though not exactly homologous, the ventral modification near the end of the abdomen of both sexes is designated by this term.

just posterior of this pair of expansions is a pair of very large stout spines with serrated edges, and in front, between the antennæ, are two groups of a few more elongate tubercles, the longest almost a blunt spine; antennæ with the basal two segments considerably enlarged, the basal one with a large double pointed tubercle on the upper apical margin; eyes slightly oval and very prominent, projecting more than half their depth beyond the surface of the head. Pronotum quadrate, armed above with a pair of very large acute triangular processes, or spines, and other smaller spinelike tubercles and rugosities; mesonotum armed laterally with several long stout simple spines and above with two pairs of acutely pointed elongate triangular plates or broad based spines with serrated edges; metanotum armed above near the cephalic margin with a pair of very large double pointed, thick based spines and on each side over the posterior coxæ with a flat flange terminated in three stout spines; median segment about two-thirds as long as the metanotum and moderately distinct, armed above near the cephalic margin with a single stout median spine. Abdomen triangular in cross section except the sixth and seventh segments which are flattened above; the seventh and eighth segments are much broadened and the ninth is small, narrow, and turned up to a nearly vertical position, its narrowness due to lateral folding; the whole abdomen is covered with small tubercles and the basal three segments are each armed with a pair of large simple dorsolaterally located spines; operculum broad, compressed ventrally and reaching the tip of the abdomen, the surface rough. Legs moderately stout; femora and tibiæ all unarmed mesially beneath, but the femora are armed laterally with a few short blunt ventral spines on both sides; above the femora and tibiæ are armed with very broad based spines, those on the tibiæ small, but mere lamellations, being without pointed apices, but two or three in number and in a single row, but those of the femora are larger, acutely pointed and in two rows of two to four pairs; anterior femora scarcely at all curved basally; metatarsi about half as long as the combined

lengths of the rest of the tarsal segments. General color black-brown, almost black, except the antennæ beyond the second segment, which is yellow with the extreme tip of the segments very narrowly darkened; a rounded slightly elevated median dorsal ridge extending from the front margin of the mesonotum to near the end of the abdomen is yellowish brown and the legs are very slightly lighter than the rest of the general color.

Measurements.—Length: Total, 42 mm.; fore femora, 12 mm.; middle femora, 10 mm.; hind femora, 13 mm.; mesonotum, 6.25 mm.; width: across metanotum, 4 mm.

Described from a single ♂, December 6, 1906. Iconnicoff.

Type in collection of Iconnicoff.

Family TETTIGONIDÆ

Subfamily GRYLLACRINÆ

Hyperbaenus virgo Brunner.

Hyperbaenus virgo Brunner, Verh. zool.-bot. Ges. Wien, vol. xxxviii, p. 368 (1888); Kirby, Syn. Cat. Orth., vol. ii, p. 148 (1906).

One ♀, May, 1909. Schunke.

Hyperbaenus juvenis Brunner.

Hyperbaenus juvenis Brunner, Verh. zool.-bot. Ges. Wien, vol. xxxviii, p. 368 (1888); Kirby, Syn. Cat. Orth., vol. ii, p. 148 (1906).

One ♀, September, 1908. Schunke.

This is the variety mentioned by Griffini in his monographic study of this genus, Redia, vol. vii, p. 187-203 (1911).

Hyperbaenus brevipennis, new species. (Pl. I, fig. 8.)

This species is referred to this genus by the absence of subgenital styles and other generic characteristics pertaining to *Hyperbaenus* and is clearly differentiated from all other members of the genus by the brevity of the organs of flight.

Description (♂).—Head of approximately the same

width as the pronotum; fastigium of the vertex smooth, rounded, and twice as broad as the basal segment of the antenna. Pronotum smooth, a little longer than broad, anteriorly and posteriorly broadly rounded; lateral lobes elongate, the humeral sinus shallow but distinct. Abdomen short, the last dorsal segment bent abruptly downward and inward behind a bifurcated erect organ which may be the supraanal plate or a genital organ (see Pl. I, fig. 8); subgenital plate sulcate ventrally, apically bituberculate but without styles; cerci simple, cylindrical, curved upward and inward, somewhat longer than indicated by the figure. Legs stout; fore and middle tibiæ with four large hairy calcars and a very small apical one on each ventral margin, unarmed above; hind tibiæ unarmed beneath except for two short chitinous tipped calcars on each side but above is armed on both margins with five or six stout fixed spines in addition to the apical calcars; fore and middle femora unarmed above and below, the posterior ones armed beneath on the inner margin with two or three distinct but small spines, the apical one larger, often a still smaller one farther toward the base, and on the outer margin with six moderate spines, all spines black tipped. Tegmina apically broadly rounded and about three times as long as broad when spread, when folded they are somewhat rolled and then appear narrower and more pointed; they barely surpass the tip of the abdomen, extending but a little beyond the middle of the posterior femora; wings hyaline, just barely exceeding the tegmina when closed, not at all when spread; the veins opaque.

General color uniformly yellowish; eyes blackish; spines of legs reddish brown for nearly the entire length, apically darker.

(♀).—Similar to the male, the spines of the hind femora a little larger; vertex blackish with conspicuous yellowish ocellar spots. The cerci are short and nearly straight and the ovipositor is much longer than the posterior femora, apically bluntly rounded and the whole curved uniformly upward.

Measurements.—Length: Pronotum, ♂, 3.5 mm.; ♀, 4.5 mm.; hind femora, ♂, 10 mm.; ♀, 10 mm.; tegmina, ♂, 12 mm., ♀, 12 mm.; ovipositor, 14 mm.; width: tegmina at widest point, ♂, 3.75 mm.; ♀, 4 mm.

Described from one ♂ and one ♀. Type ♂, December 1, 1906. Iconnicoff. Allotype ♀, November 12, 1906. Iconnicoff.

Type and allotype in the collection of the U. S. National Museum.

Cat. No. 21322, U. S. Nat. Mus.

Subfamily COPIPHORINÆ

Moncheca bisulca Serville.

Locusta bisulca Serville, *Encycl. Method. Ins.*, vol. x, p. 342 (1825); *Exocephala bisulca* Kirby, *Syn. Cat. Orth.*, vol. ii, p. 233 (1906); *Moncheca bisulca* Karny, *Wytsman's Gen. Insectorum*, Fasc. 139, p. 16, pl. iii, fig. 2 (1912).

Three ♀ ♀, October and November, 1908, and March, 1909. Schunke.

These specimens are similar to a female before me from Venezuela except the size is a little less and the pronotum is uniformly yellowish while in the Venezuela specimen the pronotum is marked by a broad irregular transverse stripe extending across both disk and lateral lobes, covering most of the latter, and the disk margined before and behind with blackish, narrower in front, and there extending downward well onto the lateral lobes. The smaller size of the Peruvian specimens together with the uniformly colored thorax may indicate a new species but it does not seem well to characterize them as such at this time.

Neoconocephalus subulatus Bolivar.

Conocephalus subulatus Bolivar, *Ann. Soc. Espan.*, vol. x, p. 498 (1881); *Conocephaloides subulatus* Kirby, *Syn. Cat. Orth.*, vol. ii, p. 241 (1906); *Neoconocephalus subulatus* Karny, *Wytsman's Gen. Insectorum*, Fasc. 139, p. 29 (1912).

One ♂, one ♀, August and September, 1909. Schunke.

The *Neoconocephalus flavirostris* of Redtenbacher is very likely nothing more than a form of this species, if not identi-

cal with it. The male listed above has the lateral carinæ of the pronotum distinctly yellowish and the female furnishes measurements more like those given for *flavirostris* than for *subulatus*. The measurements of this pair from Peru are as follows: Length: fastigium of the vertex beyond the eyes, ♂, 4.5 mm., ♀, 5 mm.; pronotum, ♂, 9 mm., ♀, 9 mm.; tegmina, ♂, 38 mm., ♀, 47 mm.; hind femora, ♂, 16.5 mm., ♀, 19.5 mm.; ovipositor, 21 mm.

Neoconocephalus tenuicauda Scudder.

Conocephalus tenuicauda Scudder, Proc. Bost. Soc. Nat. Hist., vol. xii, p. 333 (1869); *Conocephaloides tenuicauda* Kirby, Syn. Cat. Orth., vol. ii, p. 247 (1906); *Neoconocephalus tenuicauda* Karny, Wytzman's Gen. Insectorum, fasc. 139, p. 33 (1912).

One ♀, January, 1909. Schunke.

This specimen is somewhat larger than the type but otherwise agrees very well with the description. It measures as follows: Length, pronotum, 9 mm.; hind femora, 29 mm.; tegmina, 50 mm.; ovipositor, 27 mm.

Neoconocephalus scudderii Bolivar.

Conocephalus scudderii Bolivar, Ann. Soc. Espan., vol. x, p. 497 (1881); *Conocephaloides scudderii* Kirby, Syn. Cat. Orth., vol. ii, p. 247 (1906); *Neoconocephalus scudderii* Karny, Wytzman's Gen. Insectorum, Fasc. 139, p. 33 (1912).

Four ♂♂, three in September and one in November, 1908, by Schunke, and two ♀♀, one November 4, 1906, by Iconnicoff, and one in September, 1908, by Schunke.

. Two of the above males are brown, all the rest are green.

Neoconocephalus sp.

One ♀ nymph, April, 1909. Schunke.

This immature specimen has a short rounded cephalic cone without black marking beneath and the ovipositor is a little longer than the hind femora.

Subfamily CONOCEPHALINÆ

Conocephalus equatorialis Giglio-Tos.

Xiphidium equatorialis Giglio-Tos, Boll. Mus. Torino, vol. xiii, No. 311, p. 92 (1898); *Anisoptera equatorialis* Kirby, Syn. Cat.

Orth., vol. ii, p. 276 (1906); *Conocephalus* (*Neoxiphidion*) *equatorialis* Karny, Wytzman's Gen. Insectorum, fasc. 135, p. 9 (1912).

One ♀, November, 1908. Schunke.

This specimen agrees very well with the original description except that the size is a little greater.

Conocephalus saltator Saussure.

Xiphidium saltator Saussure, Rev. Zool., (2), vol. xi, p. 208 (1859); *Anisoptera saltator* Kirby, Syn. Cat. Orth., vol. ii, p. 276 (1906); *Conocephalus* (*Neoxiphidion*) *saltator* Karny, Wytzman's Gen. Insectorum, fasc. 135, p. 9 (1912).

One ♀, October 21, 1906. Iconnicoff. Also one male nymph which is probably this species, September 28, 1906. Iconnicoff.

This seems to be a very variable species and may eventually prove to contain two or more forms worthy of distinctive names. The posterior femora vary from almost or quite unarmed beneath to distinctly spinose and the pronotum above may be black or unicolorous with the sides. The adult specimen here recorded has a couple of moderate sized ventral spines on the hind femora and the pronotum is infuscated above.

Subfamily AGROECINÆ

Subria viridis, new species. (Pl. I, fig. 9.)

The green color will at once separate this species from the other New World forms of the genus.

Description (♂, the ♀ unknown).—Head barely broader than the pronotum; fastigium of the vertex but gently tapered, rounded above, about as broad as the basal segment of the antennæ and barely extending beyond it, apically rounded and in no ways decurved, beneath continuous with the facial fastigium but at the place of meeting there is a very narrow transverse crease; prosternum unarmed, the sternal lobes short, little developed; pronotum anteriorly and posteriorly truncate, but little produced behind, the disk rounded, slightly flattened posteriorly, merging gradually into the lateral lobes without signs of lateral carinæ; lateral

lobes shallow, much longer than high, the lower margin descending, the deepest point a little behind the middle, the hind margin straight, without humeral sinus. Legs moderately stout, the anterior coxæ armed; anterior tibiæ furnished with conchate foramina and, with the middle tibiæ, unarmed above, beneath armed with strong spines about as long as the tibial depth; hind tibiæ with an apical spine next the apical calcar only on the inner side, armed beneath on the apical half with a few spines, apically in a double row; all the femora unarmed above, the fore and middle ones armed beneath with a few short spines on the cephalic margin only, the hind ones armed beneath on both margins, but a few on the inner margin, those of the outer margin longer, with the extreme tips infuscated; genicular arcs acute-angulate, those of the posterior femora briefly spinose. Tegmina narrow, extending to about the apex of the posterior femora, well beyond the tip of the abdomen, the stridulating angles prominent; wings very nearly as long as the tegmina, transparent greenish in color. Abdomen moderate; last dorsal segment large and broad, and apically narrow and bent down between the cerci as an elongate-triangular diagonally pendent plate, slightly sulcate dorsally and bluntly pointed; subgenital plate apically notched, armed with a pair of very short cylindrical movable styles; cerci stout, laterally somewhat compressed, slightly broader apically and more flattened, the lower apical angle with an acute tubercle, the whole cerci no more than four times as long as broad.

General color uniformly green, the eyes and the extreme tips of the mandibles black; the spines of the posterior femora are also blackish at the extreme tips.

Measurements.—Length: pronotum, 4.5 mm.; elytra, 20 mm.; posterior femora, 10.5 mm.; width: pronotum at posterior border, 3 mm.; elytra at middle, 3 mm.

Described from one ♂.

Type, ♂, November 12, 1906. Iconnicoff.

Type in the collection of the U. S. National Museum.

Cat. No. 21323, U. S. Nat. Mus.

In general appearance this species seems an aberrant member of the genus but it runs out here by published keys and the structural characters agree with those given for *Subria*. The narrow vertex seems to prohibit its being referred to the subfamily Copiphorinæ and besides it does not appear to agree with the description of any genus in that group. Its general appearance is shown in Plate I, figure 9.

***Eschatocerus nigrospinosus* Karny.**

Eschatocerus nigrospinosus Karny, Abhandl. k. k. zool.-bot. Ges. Wien, vol. ix, part 3, p. 64 (1907).

One ♀, October 17, 1906. Iconnicoff. One ♂, one ♀, no date. Schunke.

These specimens fit very exactly the original description of Karny's species.

***Loja subulata*, new species. (Pl. I, fig. 10; Pl. II, fig. 12.)**

This is a much more robust species than *laevis* Giglio-Tos, the only other species known. The fastigium of the vertex is less pointed than in that species and the stridulating vein of the left tegmina is less angularly projected than in the case of *laevis* as illustrated by Karny in Wytsman's Gen. Insectorum, Fasc. 141, plate iv, fig. 10 (1912).

Description (♂ and ♀).—Head moderate, no broader than the pronotum; fastigium of the vertex about as broad as the basal segment of the antenna, the sides about parallel, distally converging very slightly, the tip broadly rounded, the whole not exceeding the basal segment of the antenna in length, evenly rounded dorsally and beneath convergently contiguous with the facial scutellum. Pronotum subtruncate anteriorly and posteriorly, but little produced behind, the disk nearly flat and merging into the lateral lobes with persistent but rounded lateral carinæ which diverge very gently at both extremes; lateral lobes much longer than high with rounded angles and very obscure humeral sinus, the lower margin descending posteriorly, the deepest portion behind the middle; prosternum armed with a pair of long spines. Legs moderately stout; fore coxæ armed with a long sharp spine; fore tibiæ with conchate foramina on both sides, un-

armed above but armed beneath, as are also the middle ones, with several pairs of medium fixed spines; hind tibiæ armed on both margins above and below, with an apical spine above next the apical calcar on the inner side only; fore and middle femora armed beneath on the cephalic margin only with short stout spines, two on the anterior and three on the middle ones; hind femora strongly swollen in the basal half, armed beneath on both margins with short stout spines, three or four on the inner and four or five on the outer; geniculations of all the femora acutely angulate, those on the inner side of the middle ones and on both sides of the hind ones being spinose. Tegmina but little longer than the pronotum and about half as broad as long, apically broadly rounded, especially in the male; stridulating vein of the left tympanum of the male very thick but not angularly projecting beyond the anal margin. Plate I, figure 10, shows the shape of the tegmina of the male; wings abortive, forming mere padlike projections. Abdomen with the anal segment of both sexes deeply cleft apically, each angle forming a tapering spinelike process; subgenital plate of ♂ triangularly notched apically and furnished with a pair of stout cylindrical apically rounded styles about three times as long as thick, of the ♀ triangular in shape and apically entire, or gently concave; cerci of ♂ short, stout, somewhat compressed, twisted inward and downward apically and with an apical chitinized point, of ♀ simple, round and tapering to a point, the whole about four times as long as basal width and gently curved inward; ovipositor somewhat longer than the pronotum and shaped as in Plate II, figure 12.

General color green, in cabinet specimens yellowish green; the extreme tips of the tibiæ, a spot at the lower end of the foramina of the anterior tibiæ, the apex of the mandibles, and the lateral carinæ of the pronotum, especially the ends, black; the eyes are blackish and the anal margin of the elytra and the tympanum of the ♂ are marked with blackish; none of the above-mentioned black markings are conspicuous, those of the pronotum and the tegmina of the male being the most noticeable; the spines of the legs are mostly tipped with

dusky and the femora all have distinct and quite noticeable piceous spots at the base of each ventral spine; the fastigium of the vertex and the basal segment of the antennæ are slightly brownish and at the vertex of the facial scutellum is a slightly elongate yellowish ocellar spot; the elytra of the ♂ also has a few small but noticeable black spots about the middle.

Measurements.—Length: pronotum, ♂ and ♀, 6 mm.; tegmina, ♂, 11 mm., ♀, 7.5 mm.; posterior femora, ♂, 14 mm., ♀, 15 mm.; ovipositor, 10 mm.; width: pronotum at posterior margin, ♂ and ♀, 4 mm.; ovipositor at widest point, 2.5 mm.

Described from five specimens. Type ♂, December 2, 1906. Iconnicoff. Allotype ♀, November 24, 1906. Iconnicoff. Paratypes a, b, and c, all females, the last a nymph; a and c by Iconnicoff on December 1 and 12, 1906, and b by Schunke in December, 1908.

Type, allotype, and paratype c in the collection of the U. S. National Museum. Paratypes a and b in the collection of Iconnicoff.

Cat. No. 21324, U. S. Nat. Mus.

The paratypes show no variations from the typical.

Dectinomima peruviana, new species. (Pl. II, fig. 15, *b*.)

Similar in structure to *Dectinomima jenningsi* from Panama but smaller and not so black.

Description (♀, the ♂ unknown).—General form stout, having the general aspect of a dectician. Head with the fastigium of the vertex a little narrower than the basal segment of the antenna and scarcely as long, and marked above with a slight longitudinal impressed line, the sides parallel or very slightly convergent and the apex broadly rounded, beneath connected with the frontal fastigium by a very narrow vertical ridge. Pronotum posteriorly more broadly rounded than in *jenningsi* (Pl. II, fig. 15, *a*), and moderately produced, the disk rounded, no trace of lateral carinæ; lateral lobes shallow, the lower margins declivent, the deepest part of the lobe being behind the middle; humeral sinus distinct but shallow; prosternal spines long and sharp. Abdomen short and stout, but little

longer than the pronotum; legs moderately stout, the hind femora strongly swollen in the basal half; fore tibiæ with concave foramina and, like the middle ones, unarmed above but both ventral margins armed with several spines; hind tibiæ armed on both margins above and beneath, above with longer spines for nearly the entire length and beneath with smaller ones only in the apical half and in a clearly double row only apically, above with a spine adjacent to the apical calcar only on the inner margin; all femora armed beneath only, the posterior ones on both margins with moderately long spines and the fore and middle ones on the cephalic margin only with very short stout ones; geniculations acute, that on the caudal side of the middle ones and both sides of the posterior ones more so, being briefly but decidedly spinose. Organs of flight concealed beneath the pronotum.

General color a dark reddish brown, the sides of the abdomen blackish, but not strongly contrasted with the rest of the surface; fore and middle legs lighter with one or two blackish bands on each femora and tibia; lower side of abdomen reddish and the lower part of the head is lighter colored than the dorsal surface; antennæ yellowish banded with black.

Measurements.—Length: Pronotum, 7.5 mm.; posterior femora, 14 mm.; ovipositor, 8 mm. Width: pronotum through middle, by caliper measurement, 5 mm.; ovipositor at thickest part, 2 mm.

Described from two ♀♀. Type, November 25, 1906. Iconnicoff. Paratype a, November 16, 1906. Iconnicoff.

Type in collection of U. S. National Museum; paratype in collection of Iconnicoff.

Cat. No. 21325, U. S. Nat. Mus.

Dectinomima pallida, new species. (Pl. II, figs. 13, 14, and 15, c.)

Allied to the preceding but quite distinctive in general appearance.

Description (♀, the ♂ unknown).—The general form is distinctly more slender than that of the preceding species and the geniculations of the femora appear less acute, those on the

cephalic side of the middle ones scarcely acute. The pronotal disk is posteriorly subtruncate, not nearly so rounded as in the preceding species or in *D. jenningsi*. The entire insect is a lightly mottled grayish yellow except a broad piceous streak on the sides of the abdomen, which is strongly contrasted with the rest of the color and is dimly and very narrowly continued part way along the pronotum; the fore and middle legs are less noticeably banded than in *peruviana* but the antennæ are about as in that species.

Measurements.—Length: pronotum, 7 mm.; hind femora, 15.5 mm.; ovipositor, 10 mm. Width: pronotum through middle, 4.75 mm.; ovipositor, 2 mm.

Described from one ♀, the type, December 12, 1906. Iconicoff.

Type in the collection of the U. S. National Museum.

Cat. No. 21326, U. S. Nat. Mus.

This may eventually prove to be but a variety of *peruviana* but the less rounded posterior margin of the pronotum, lighter coloration, and more slender appearance indicates distinctness.

The genus *Dectinomima* is very closely allied to the genus *Uchuca* of Giglio-Tos and may indeed prove to be the same. The better developed clytra, at least in the female, of *Uchuca* make their separation easy but the males of *Dectinomima*, at the present unknown, may have these organs longer than in the female. The original description of *Uchuca* states that the posterior tibiæ have an apical dorsal spine on each side. This, if true, constitutes an adequate differentiating character, as in *Dectinomima* there is an apical spine above on the inner margin only. But it is possible that Giglio-Tos considered the dorsal calcar on the inner margin a spine and in that case this character conforms with conditions present in *Dectinomima* as illustrated in Plate II, figure 11. The type of *Dectinomima jenningsi* was before Karny when he wrote the fascicule on the Copiphorinæ and he also evidently knows the genus *Uchuca* as he figures the type species of that genus and as he does not merge the two genera, but even follows their respective authors in placing them in separate subfamilies, it is possible that they are really distinct.

Both the above discussed genera could be referred with about equal reason to either the subfamily Copiphorinæ, where *Dectinomima* was originally included, or Agroecinæ, where *Uchuca* has been placed. The fastigium of the vertex varies from a little broader than the basal segment of the antenna to a little narrower and in some specimens there is a slight dorsal impressed line. The coloration and the short falcate ovipositor rather favor their inclusion in Agroecinæ and *Dectinomima* is therefore here referred to that subfamily. It is somewhat doubtful, however, if Agroecinæ should be considered as of subfamily rank as there seems to be no very constant character to separate it from Copiphorinæ. The character used in this connection, the fastigium of the vertex being broader than the basal segment of the antenna in Copiphorinæ and no broader in Agroecinæ, is a slight one upon which to base subfamilies, being unimportant and not very constant. But a combination of characters such as general color, shape of ovipositor, etc., refers most species to one or the other of these two groups with considerable certainty.

The three known species of *Dectinomima* may be separated as follows:

- Fastigium of the vertex fully as broad as the basal segment of the antennæ; pronotal disk semicircularly rounded posteriorly (Pl. II, fig. 15, *a*); abdomen wholly black, the sides no darker than the dorsum.....:.....*jenningsi* Caud.
- Fastigium of the vertex scarcely as broad as the basal segment of the antenna; pronotal disk less rounded posteriorly; abdomen with the sides noticeably darker than the dorsum..... 2
- Pronotal disk distinctly rounded posteriorly (Pl. II, fig. 15, *b*); a stouter and darker species.....*peruviana*, n. sp.
- Pronotal disk subtruncate posteriorly (Pl. II, fig. 15, *c*); a less robust and lighter colored species.....*pallida*, n. sp.

Subfamily PSEUDOPHYLLINÆ

There appears to be much confusion in this entire subfamily and determinations by well-qualified specialists are often made with a query. The generic relationships are not well worked out and a general revision of the group is needed. Brunner laid too much stress on minor characters, such as certain spines

in the tibiæ, etc., but his monograph of 1895 is the most comprehensive revision of the group ever published and is invaluable to the student of these interesting insects.

Bufotettix, new genus.

This genus is remarkable for its small size and short legs of the only known species.

Description.—Head barely as broad as the anterior part of the pronotum and furnished above with a few small granules or tubercles, one near the inner margin of each eye and a pair at the base of the fastigium of the vertex being the only ones of noticeable size; fastigium of the vertex horizontal, triangular in shape, and very small, less than half as broad basally as the basal segment of the antenna and not surpassing the antennal scrobæ, apically minutely notched and not quite meeting the facial fastigium; eyes globular, very prominent, being unusually protuberant; antennæ moderately slender, the basal segment large and furnished with an outer dorsolateral apical tooth, or elongate tubercle; second segment one-half as thick and about one-third as long as the basal one, twice as thick as the succeeding ones, which are cylindrical. Pronotum rugose, the disk flat and gently constricted mesially, somewhat broader posteriorly than anteriorly, the front margin with a mesial well-elevated tubercle, the hind margin truncate and very little prolonged posteriorly; transverse sulci distinct, especially the posterior one; lateral carinæ distinct only on the metanotum; lateral lobes subvertical, almost twice as long as deep, the lower margins straight and horizontal, somewhat thickened, the front angles rectangular, the posterior ones rounded, the posterior margins slanting backward, without distinct humeral sinns; prosternum with a pair of very short blunt spines or tubercles; meso- and metasternum rectangular, about three times as broad as long, the pits far separated and connected by a deep transverse sulcus. Abdomen stout; last dorsal segment apically broadly concave; supraanal plate triangular, longitudinally sulcate dorsally; subgenital plate elongate, apically narrowing and deeply notched, each angle slightly longer than broad and with an apical blunt cylindrical style about three times as long as

broad; cerci bluntly conical, scarcely longer than broad, each about as broad as the subgenital plate and simple. Legs very short, the fore femora shorter than the pronotum and the posterior ones less than twice as long; middle legs missing from the unique type of the only known species; anterior femora unarmed above, beneath armed on the inner margin only with two or three short stout spines on the apical half; fore tibiæ flat and unarmed above, beneath armed with a few very small fine spines, extremely minute on the caudal margin, those on the cephalic margin larger and about five in number; posterior femora stout, but little more than twice as long as the greatest width, only about the apical fifth parallel, unarmed above, beneath armed on the outer margin only with six stout triangular spines, the genicular angles unarmed, as are also those of the fore femora; posterior tibiæ armed above on the caudal margin with eight broad-based spines, the last one near the apex, and on the cephalic margin with three very small depressed apically pointed tubercles on the basal half; beneath on the apical half with several very minute spinules on the cephalic margin, the caudal margin with a few still more minute ones near the apex; the hind tibiæ are without apical calcars above, the lateral and ventral pairs short. Tegmina and wings of equal length, barely reaching the tips of the posterior femora and not far surpassing the tip of the abdomen; tegmina about two and one-half times as long as broad, coriaceous, thick and opaque, the radial veins nearly straight, at the base far separated, gradually drawing nearer toward the apex, the posterior one dividing the tegmina into about equal halves; wings equally long as broad, translucent, the veins yellowish; the outer margin evenly rounded, not at all sinuate.

Type, *Bufotettix alpha*, new species.

Bufotettix alpha, new species.

One of the smallest Pseudophyllids known.

Description (♂, the ♀ unknown).—The characters given in the generic description will serve to distinguish this remarkable little species from all other described members of the subfamily known to me. The tympanum of the tegmina are about

one-fourth as long as the tegmina and about twice as long as broad; the stridulatory vein is stout and does not project at all beyond the inner margin, which is thickened and forms a notch just above the termination of the above vein. The entire surface of the insect, including the elytra, is rugose, the femora and pronotum, especially the latter above, also tuberculate.

General color brown with darker mottlings; sides of pronotum, especially along the sites of the lateral carinæ, blackish and the femora with three illy defined but broad and distinct blackish bands; the tip of the abdomen, including the last dorsal segment, the supraanal and subgenital plates, and the cerci clear yellowish, the dorsal sulcation of the supraanal plate black and the last dorsal segment of the abdomen with a round black dot on each side of the upper surface; the antennæ are irregularly banded with light yellowish and dark brownish.

Measurements.—Length: pronotum, 5 mm.; anterior femora, 4 mm.; posterior femora, 8 mm.; tegmina, 10 mm.; wing, 9 mm. Width: pronotum, posteriorly, 3.25 mm.; tegmina, at middle, 4 mm.; wing, at middle, 8 mm.; posterior femora, at widest point, 3.5 mm.

Described from one ♂, type, August, 1908. Schunke.

Type in the collection of the U. S. National Museum.

Cat. No. 21327, U. S. Nat. Mus.

Orpacophora coronata Linnaeus.

Gryllus Tettigonia coronatus Linnaeus, Syst. Nat., ed. 10, vol. i, p. 430 (1758); *Orpacophora coronata* Kirby, Syn. Cat. Orth., vol. ii, p. 313 (1906).

One ♀, July, 1908. Schunke.

Diacanthodis granosa Brunner.

Diacanthodis granosa Brunner, Monogr. Pseudoph., p. 117 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 315 (1906).

Two ♀ ♀, November, 1908. Schunke.

These female specimens agree very well with the description of the male type. There are eight dorsal spines on the posterior femora instead of seven as in the male as described by Brunner. The measurements of the female are as follows:

Length: pronotum, 5 mm.; anterior femora, 7 mm.; posterior femora, 14.5 mm.; tegmina, 28 mm.; ovipositor, 14 mm.

Width: pronotum, through the middle at lower border of the lateral lobes, by caliper measure, 6 mm.; posterior femora at widest point, 2.75 mm.; ovipositor, at middle, 2 mm.

Pleminia mutica Brunner. (Pl. II, fig. 16.)

Pleminia mutica Brunner, Monogr. Pseudoph., p. 124 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 316 (1906).

Two ♀ ♀, August and December, 1908. Schunke. Also a female nymph evidently of this species December, 1908. Schunke.

In these specimens the dorsal teeth of the middle tibiæ are practically absent, being reduced to mere blunt tubercles. The subgenital plate (Pl. II, fig. 16), has an angulation on each side of the notched apex. These were evidently obscured in Brunner's type, as he makes no mention of them in his description. Aside from this plate the structure of these specimens fits his description very exactly. One of these specimens, the one taken in December, varies from the typical by having some blackish coloration in some of the cells on the tegmina.

The posterior tarsi of this species have the second segment modified above somewhat after the manner of *Saga* as illustrated in my paper on the Saginæ in Fascicule 167, Wytsman's Genera Insectorum, p. 3, pl. ii, fig. 2 (1916).

Lichenochrus amplipennis, new species.

This is a medium-sized species showing relationship to several described forms but apparently referable to none of them. In Brunner's key it runs out to *variabilis* but it does not seem to possess all the characters of that species. It is also apparently related somewhat to *infumatus* Brunner but seems amply distinct from that species.

Description (♂, the ♀ unknown).—Head smooth, of subequal width with the front of the pronotum; eyes round and very prominent; fastigium of the vertex small, triangular, apically slightly notched, above broadly sulcate, the width less than half that of the basal segment of the antennæ and the length but little greater than the basal width, not surpassing the antennal scrobæ, a round tubercle on each side at the base; scutellum of the face abruptly tapering above to a rounded

tubercle, separated from the fastigium of the vertex by a rounded notch; antennæ with the basal segment armed with an apical well-developed but blunt spine on the inner dorsolateral margin. Pronotum slightly rugose on the disk, more so on the metazona; mesozona with a large rounded tubercle on each side of the median line; lateral carinæ present on the metanotum only and there broadly rounded but well elevated, anteriorly forming a rounded shoulder; transverse sulci broad and conspicuous, especially the posterior one, which is situated at the middle of the prothorax, curves frontward below and is intersected at the middle on the dorsal line by a short longitudinal sulcus; prozona with a rounded tubercle on the middle of the anterior margin; posterior margin of pronotal disk broadly rounded, the edge smooth and somewhat thickened; lateral lobes considerably longer than high, the lower margins straight and horizontal, the anterior angles rectangular; humeral sinus deep, rounded-rectangular; prosternum armed with a pair of moderately long spines; meso- and metasternum transverse, the lobes rounded and lateral, not at all prolonged posteriorly; mesosternal pits considerably farther separated from each other than the distance from them to the lateral margins of the sternum and separated by a transverse furrow, those of the metasternum separated scarcely farther than the distance to the edge of the sternum. Legs moderately long and stout, the anterior femora but one-third longer than the pronotum; anterior tibiæ flat and unarmed above, beneath on each margin armed with several small spines, the foramina shell shaped and very moderately expanded; middle tibiæ flat above and unarmed on the cephalic margin, the opposite margin armed with a single short subbasal spine, beneath armed on both margins with several short stout spines; posterior tibiæ armed above and below on both margins with moderately stout spines, the inner ventral margin spined only on about the apical half, no apical spine on the outer dorsal margin; all femora rounded and unarmed above, beneath sulcate and armed on the cephalic margin only, three or four spines on the anterior femora, four larger flattened ones on the middle ones and seven still larger ones on the posterior femora, those toward the apex larger and all curved

backward; caudal geniculations of the middle femora distinctly armed with a long, stout, sharp spine, all the others rounded or very bluntly and briefly armed. Organs of flight fully developed; tegmina nearly three times as long as the pronotum, and about three times as long as broad and rapidly tapering in the apical half by the curving backward of the costal margin, the anal margin of the spread tegmina being nearly straight; radial veins nearly straight and basally well separated but converging toward the apex; speculum of the right tegmen large and transparent, that of the opposite one smaller and coriaceous, the stridulating vein scarcely forming an angle; wings moderately and uniformly fuliginous, about as broad as long, at rest just reaching the apex of the tegmina, the outer margin evenly rounded, not at all sinuate. Abdomen stout; supraanal plate depressed, triangular, a little broader than long, apically entire, slightly concave dorsally; subgenital plate broad and ventrally convex basally, apically narrowed and concave beneath, apically notched, each side with a stout depressed style which is broadest mesially and broadly concave on the inner ventrolateral surface, the whole about twice as long as the median width, the apex rounded; cerci but little longer than broad, conical from an outer dorsolateral aspect, which surface is broadly convex, the inner side deeply and broadly concave, the lower margin curved a little inward and armed with a long slender upwardly and inwardly directed spine which is hidden from view unless the cerci are raised for examination.

General color brownish yellow varied with darker, especially on the elytra; the posterior femora have a broad dark brownish band a little beyond the middle, a similar preapical band and a darker and more conspicuous area on the dorsal and upper half of the outer surface at about the basal third, at the widest part of the femora. The spines of the legs are infuscated apically. The short median longitudinal sulcus of the pronotal disk is black and there is an irregular blackish stripe marking the site of lateral carinæ on the posterior half of the pronotum. The face is concolorous with the rest of the head.

Measurements.—Length: pronotum, 8 mm.; anterior femora, 12 mm.; posterior femora, 20 mm.; tegmina, 30 mm.; wings, 28 mm.; anal styles, 2 mm.; cerci, 2 mm. Width: pronotum at posterior margin, 5.5 mm.; tegmina at widest point, at about the basal third, 10 mm., at apical fourth, 5 mm.; wing at widest point, 24 mm.; posterior femora at widest point, 5 mm.; anal styles, 1 mm.; cerci, 1.75 mm.

Described from two ♂♂, type, December, 1908. Schunke. Paratype, September, 1909. Iconnicoff.

Type in the collection of the U. S. National Museum; paratype in the collection of Iconnicoff.

Cat. No. 21328, U. S. Nat. Mus.

Acanthodis aquilina Linnaeus.

Gryllus Tettigonia aquilinus Linnaeus, Syst. Nat., ed. 10, vol. i, p. 430 (1758); *Acanthodis aquilina* Kirby, Syn. Cat. Orth., vol. ii, p. 318 (1906).

One ♂, no date. Schunke.

This specimen agrees very well with the figure and description in Brunner's monograph.

Stenoschema gracile Brunner.

Stenoschema gracile Brunner, Monogr. Pseudoph., p. 137 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 319 (1906).

One ♂, October 11, 1908. Schunke. Also a female nymph determined doubtfully as this species, June 12, 1906. Iconnicoff.

This male specimen appears typical with the exception of the tegmina appearing somewhat narrower than stated in the original description, being barely more than 3 mm. in width.

Leurophyllum unicolor Brunner.

Platyphyllum unicolor Brunner, Monogr. Pseudoph., p. 139 (1895). *Leurophyllum unicolor* Kirby, Syn. Cat. Orth., vol. ii, p. 320 (1906).

One ♂, December 15, 1906. Iconnicoff. Three ♀♀, January, 1906, April and September, 1908. Schunke.

These specimens fit Brunner's description very well. The ventral spines of the anterior femora vary in number from one to three.

The male, hitherto undescribed, runs out in Brunner's key to *gramulosum* but is too small for that species, being more as in *guttatum* in this respect but differing from this species in others. The elytra are broader basally than in the female and more acutely pointed apically. The cerci are bifid apically, the upper branch much shorter than the lower one; subgenital plate narrowed apically and with a U-shaped apical notch and a pair of cylindrical slender styles about ten times as long as broad. The breast is piceous, as is also the face. The measurements of the single male represented in this collection are as follows: Length: pronotum, 7.25 mm.; anterior femora, 7 mm.; posterior femora, 16 mm.; tegmina, 26 mm.; anal styles, 2 mm. Width: pronotum, posteriorly, 4.5 mm.; tegmina, at base, across speculum, 6.5 mm., at middle, 5 mm.; posterior femora, 3.1 mm.

The tegmina of the female are noticeably marked with darker zigzag markings of variable distinctness, a character scarcely indicated in the male discussed above and at variance with the original diagnosis. It is possible that the above male is wrongly associated with the females but without additional material it is thought best not to characterize it as distinct at this time.

The wings of this species are very lightly fuliginous in both sexes and in this character stands intermediate between the clear-winged genus *Platyphyllum* of Serville and the fuliginous-winged *Leurophyllum* of Kirby. This character seems to be about the only one so far given for the separation of these two genera and it appears of little value for the purpose. But a structural character may exist to serve for their separation, though I have insufficient knowledge of the forms to point such out at this time.

***Leurophyllum brevixiphum* Brunner.**

Platyphyllum brevixiphum Brunner, Monogr. Pseudoph., p. 140 (1895); *Leurophyllum brevixiphum* Kirby, Syn. Cat. Orth., vol. ii, p. 320 (1906).

One ♂ and one ♀, April and July, 1909. Schunke.

Leurophyllum maculipenne Serville.

Platyphyllum maculipenne Serville, Ins., Orth., p. 447 (1839);
Leurophyllum maculipenne Kirby, Syn. Cat. Orth., vol. ii, p. 320
(1906).

One ♂, September 9, 1906. Iconnicoff.

Meroncidius flavolimbatus Brunner.

Meroncidius flavolimbatus Brunner, Monogr. Pseudoph., p. 150
(1895); Kirby, Syn. Cat. Orth., vol. ii, p. 322 (1906).

One ♀, September, 1908. Schunke.

Meroncidius marginatus Walker.

Meroncidius marginatus Walker, Cat. Derm. Salt. Brit. Mus.,
vol. iii, p. 450 (1870); Kirby, Syn. Cat. Orth., vol. ii, p. 322
(1906).

One ♂, November, 1906. Iconnicoff. Three ♀ ♀, January
and February, 1909. Schunke.

The above male appears rather small for this species but otherwise agrees very well with the original diagnosis. It measures as follows: Length: pronotum, 8 mm.; anterior femora, 11 mm.; posterior femora, 18.5 mm.; tegmina, 29 mm. Width: pronotum posteriorly, 5 mm.; tegmina mesially, 8.5 mm.; posterior femora at widest point, 3 mm.

From an examination of type material in the British Museum I conclude that *Meoncidius inornatus* and *M. indistinctus* Walker are both synonymous with *marginatus*. Why Kirby, Syn. Cat. Orth., vol. ii, p. 332 (1906), places *indistinctus* in the genus *Bliastes* is not clear.

Meroncidius sp.

One ♂, December 4, 1916. Iconnicoff.

This is very like the male recorded above as *M. marginatus* and may be but a shorter-winged form of that species, the somewhat shorter organs of flight being the main difference noted. The tegmina of this specimen measures 25 mm. in length.

Meroncidius atricauda, new species.

This apparently undescribed form is structurally related to *M. flavolimbatus* Brunner and also to *M. innotatus* Walker, a

species belonging to and described in the present genus but listed by Kirby in the genus *Leptotettix*. But this Peruvian species is smaller and more slender than either of the above allied forms.

Description (♂).—Head smooth, no broader than the pronotum; eyes round and prominent; fastigium of the vertex elongate triangular, dorsally broadly sulcate, apically slightly elevated and not surpassing the antennal scrobæ; there is a pair of rounded tubercles at the base of this fastigium and beneath the fastigium meets that of the face but projects considerably beyond the point of juncture; basal segment of the antenna with a short stout apical spine on the inner dorsolateral margin; antennal scrobæ well developed, continued below the eyes as a transverse ridge. Thorax entirely beset with a dense mass of rounded tubercles; pronotal disk without lateral carinæ, the disk roundly subtruncate anteriorly and posteriorly, the anterior margin with a very broad slightly developed mesial tubercle; lateral lobes decidedly longer than high, the lower margins straight, fore and hind margins slightly convergent, the humeral sinus shallow. Legs short, the anterior femora scarcely one-half longer than the pronotum; anterior tibiæ flat and unarmed above, beneath with five or six small sharp spines on each margin; middle tibiæ armed beneath as in the anterior ones, above flat and armed on the caudal margin on the basal half with one or two small sharp depressed spines; posterior tibiæ rectangular in section, armed above and beneath on both carinæ with a number of small spines, those of the upper side the larger, and with an upper apical spine on the caudal margin only; femora with all the geniculations spined except the cephalic ones of the middle legs, which are narrowly rounded; anterior and intermediate femora armed beneath with four short stout spines on the cephalic margin, the opposite margin unarmed; posterior femora armed beneath with a row of eight or nine stout spines on the cephalic margin only, those toward the apex the larger and all apically somewhat curved backward; all the femora unarmed above. Organs of flight fully developed; wings lightly fuliginous, a little longer than broad, apically subtruncate; tegmina about four times as long as the pronotum,

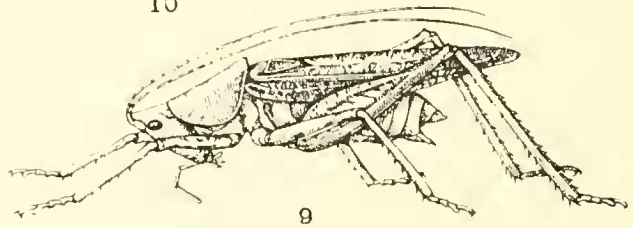
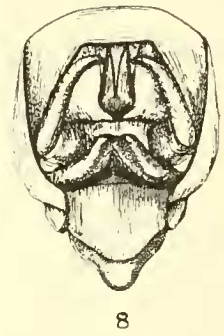
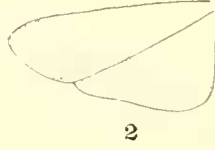
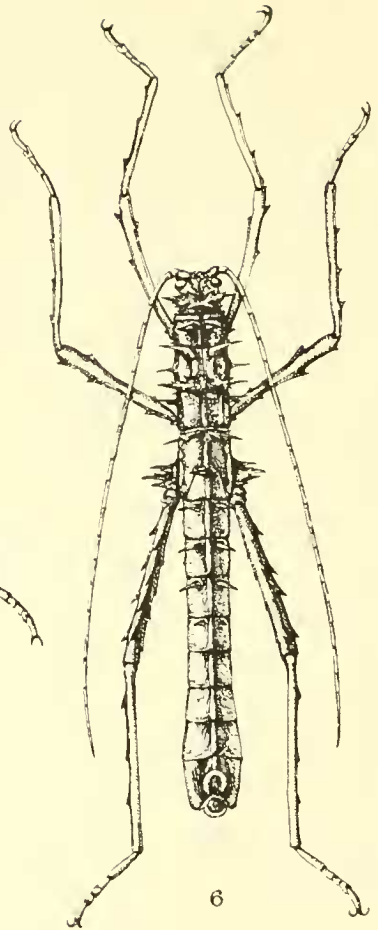
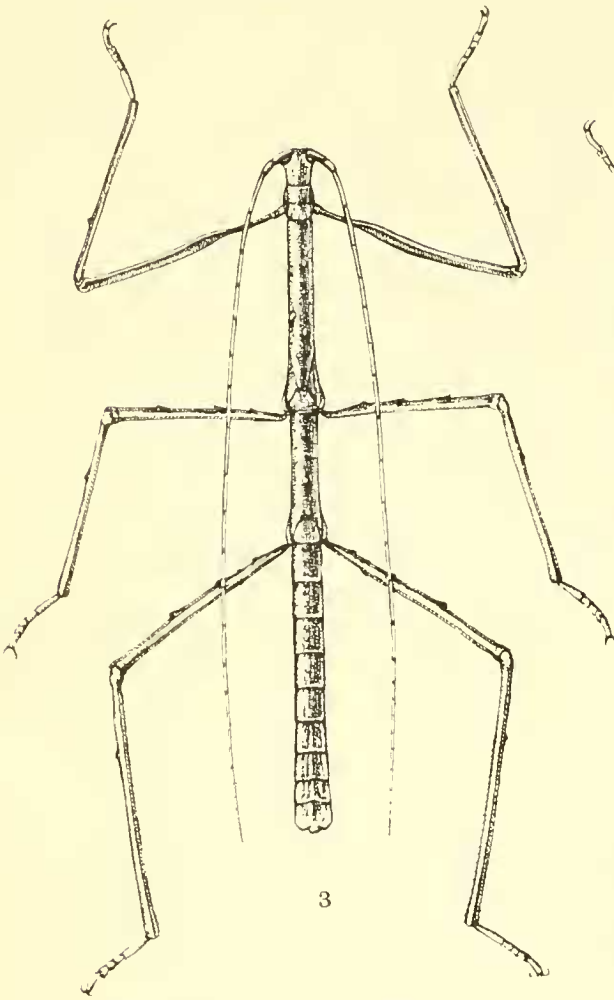
EXPLANATION OF PLATE I¹

- Fig. 1. *Paratropes acuatorialis* Saussure. (Left wing.)
2. *Paratropes mexicana* Brunner. (Left wing.)
3. *Dyme icconnicoffi*, new species. (Male type, dorsal view.)
6. *Acanthaclonia flavicornis*, new species. (Male type, dorsal view.)
7. *Acanthaclonia flavicornis*, new species. (Head of male type, lateral view.)
8. *Hyperbaenus brevipennis*, new species. (Abdomen of male type, caudal view.)
9. *Subria viridis*, new species. (Male type.)
10. *Loja subulata*, new species. (Left tegmen of male type.)

EXPLANATION OF PLATE II

- Fig. 12. *Loja subulata*, new species. (Ovipositor of allotype.)
13. *Dectinomima pallida*, new species. (Female type.)
14. *Dectinomima pallida*, new species. (Tip of posterior tibia of female type.)
15. a.—*Dectinomima jenningsi* Cardell. b.—*Dectinomima peruviana*, new species. c.—*Dectinomima pallida*, new species. Posterior margin of pronotal disk of type specimens.
16. *Pleminia mutica* Brunner. (Subgenital plate of female.)
17. *Semileptotettix flagellata*, new species. (End of abdomen of male type, subdorsolateral view.)
18. *Arrhenotettix calcaratus*, new species. (Posterior femora of male type.)
19. *Hoplotettix icconnicoffi*, new species. (Left tegmen of male type, in outline.)
20. *Typophyllum undulatum*, new species. (Right tegmen of female type, drawn from the inner surface.)
21. *Anaulacomera apicidentata*, new species. (Cerci of male type, dorsal view.)
22. *Anaulacomera cercalis*, new species. (Cercus of male type, subventral view.)
23. *Anaulacomera simplex*, new species. (Cerci of male type, dorsal view.)

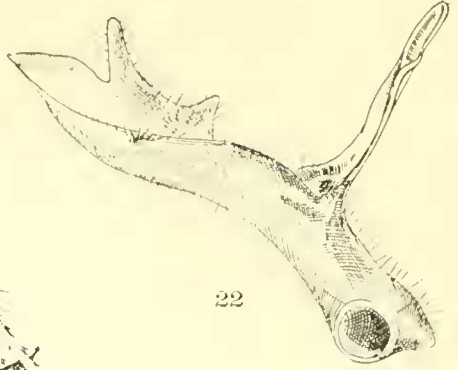
¹There are no figures 4, 5, or 11.



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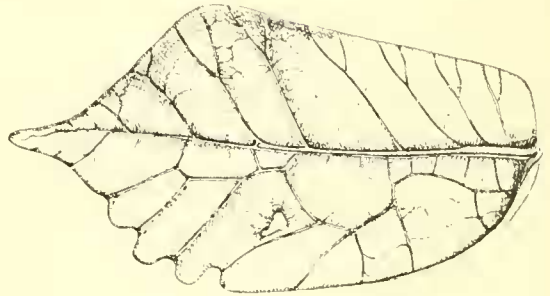
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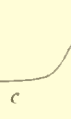
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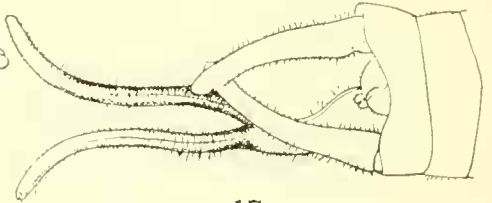
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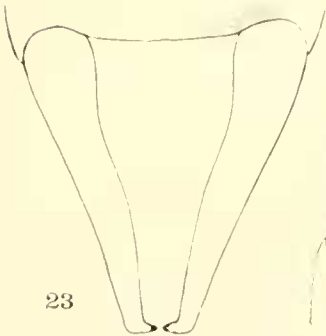
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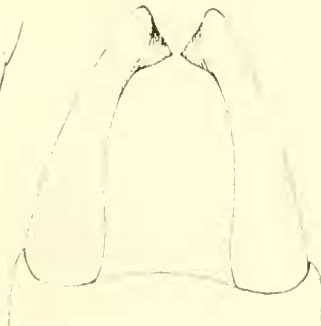
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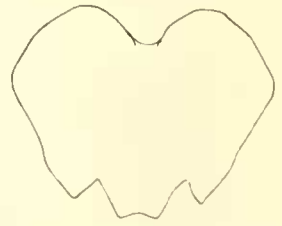
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apically rounded by the curving upward of the anal margin more than the backward curving of the anterior margin; radial veins well separated basally. Supraanal plate narrowly and shallowly sulcate above, a little longer than broad, narrowing apically, the tip very broadly rounded; subgenital plate very narrow and elongate, sulcate above and below and apically with a deep V-shaped incision, each flange about one and one-half times as long as broad, apically truncate and furnished with a bluntly pointed style about as long as the flange itself but somewhat narrower; cerci short, stout, and cylindrical, very gently curved inward and apically with a small swelling on the inner side and with a short, sharp black tooth.

General color yellowish brown; femoral spines black to near the tip where there is a light area, the very tip itself blackish; hind femora black beneath in the basal half and on the lower half of the inner face basally; last segment of the abdomen infuscated; face concolorous.

(♀). Very similar to the male except the cerci are longer, simple, and pointed, and the subgenital plate elongate-triangular and apically entire. Ovipositor stout and noticeably longer than the pronotum, straight above, apically sharply pointed by the curving upward of the ventral margin in the apical third; upper margin finely serrate in the apical half; color about as in the opposite sex, the black of the apex of the abdomen more intensified; ovipositor black in the apical half, continued as a narrow ventral streak to the base and an elongate spot of the same color on the dorsal surface in the basal half.

Measurements.—Length: pronotum, ♂, 7 mm., ♀, 7.5 mm.; tegmina, ♂, 32 mm., ♀, 35 mm.; wings, ♂, 30 mm., ♀, 32 mm.; anterior femora, ♂, ♀, 10 mm.; posterior femora, ♂, ♀, 19 mm.; subgenital plate, including styles, ♂, 10 mm.; ovipositor, 16 mm. Width: pronotum posteriorly, ♂, ♀, 5 mm.; tegmina mesially, ♂, 9 mm., ♀, 9.5 mm.; wings, ♂, ♀, about 25 mm.; ovipositor mesially, 2.75 mm.

Described from one ♂ and two ♀♀. Type, ♂, October 9, 1908. Schunke. Allotype, ♀, November 29, 1906. Iconnicoff. Paratype, ♀, November, 1906. Iconnicoff.

Type and allotype in the collection of the U. S. National Museum. Paratype in the collection of Iconnicoff.

Cat. No. 21329, U. S. Nat. Mus.

The paratype appears to have been killed before the color was completely developed as the black coloration of the ovipositor is not nearly so evident as in the allotype, though otherwise it appears about typical.

Bliastes connexus Brunner.

Bliastes connexus Brunner, Monogr. Pseudoph., p. 192 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 332 (1906).

One ♂, April, 1909. Schunke.

Bliastes spinicornis, new species.

Description (♂, the ♀ unknown).—Basal segment of the antenna with a stout sharp apical spine on the inner margin and the second segment has an acute basal tubercle on the ventral margin; the fastigium of the vertex is elongate-triangular, apically pointed and not exceeding the well-developed antennal scrobæ, dorsally sulcate and with a pair of low basal tubercles; the fastigium of the vertex is separated from that of the face by a broad rounded notch. Pronotum rounded above, and entirely covered with tubercles, lateral carinæ indicated only posteriorly and there very roundly so; pronotal disk broadly rounded posteriorly and anteriorly, the front margin with a yellowish ridge; lateral lobes about twice as long as high, the lower margin horizontal and straight and margined with a yellowish thickened border similar to that of the anterior margin of the pronotal disk; humeral sinus scarcely developed; prosternum unarmed, only tuberculate; metasternum moderately narrowed posteriorly, the pits merged into one transverse opening. Tegmina barely attaining the tip of the abdomen, apically rounded, the margins parallel; tympanum nearly round, projecting well beyond the anal margin, the membrane opaque on the left tegmen; wings broad, at rest as long as the tegmina, the outer margin broadly and evenly rounded, the membrane lightly fuliginous, the veins slightly darker. Legs moderate in length; anterior coxæ distinctly armed; all genicular arcs spinose except the cephalic ones of the intermediate femora,

which are rounded; anterior and intermediate femora armed beneath on the cephalic margin only with two or three spines and the posterior ones with five or six; anterior and intermediate tibiæ sulcate and unarmed above, beneath armed on each side with several small spinules, the hind tibiæ armed above and below on both margins, above with an apical spine on the caudal margin only; foramina of the anterior tibia shell-shaped. Abdomen moderately robust; supraanal plate large and broad, dorsally narrowly sulcate, apically roundly truncate; subgenital plate apically narrowed, shallowly notched and furnished with a pair of stout cylindrical roundly pointed styles noticeably longer than the apical width of the plate; cerci stout, cylindrical, apically broadly rounded and armed with a short inwardly directed tooth.

General color brown, the legs yellowish brown and, especially the posterior femora, with several light colored rounded spots; spines of the legs with the extreme tips blackish.

Measurements.—Pronotum, 5.5 mm.; anterior femora, 7 mm.; posterior femora, 12.5 mm.; tegmina, 14 mm. Width, tegmina mesially, 4.5 mm.; wings mesially, 10 mm.; posterior femora at widest point, 3 mm.

Described from two specimens: Type a single ♂, November 21, 1906; paratype ♂, December 1, 1906. Both by Iconnicoff.

Type in the collection of the U. S. National Museum; paratype in the collection of Iconnicoff.

Cat. No. 21330, U. S. Nat. Mus.

Cocconotus olivaceus, new species.

This handsome large dull reddish olive colored species is apparently allied to *Cocconotus festae* Giglio-Tos from Ecuador.

Description (♂).—Pronotal disk somewhat rugose with large rounded tubercles of little elevation; posterior transverse sulcus only conspicuous, situated a little caudad of the middle. Intermediate tibiæ armed above on the outer margin with four short stout spines. Cerci cylindrical, curved inward and the apex forming a short black tooth, apically notched; supraanal plate triangular, dorsally sulcate; subgenital plate long and

narrow, extending beyond the tips of the cerci, mesially longitudinally concave above and beneath, the tip deeply but roundly incised and provided with a pair of somewhat apically expanded styles over half as long as the plate itself.

General color of head, body, and legs yellowish brown except the posterior femora which are tinged with dull olive green; pronotum with a broad black dorsal stripe; spines of the femora black apically and basally, mesially yellowish; tegmina distinctly olivaceous except the anal area, which is brownish. The tips of the mandibles and the top of the head are also blackish.

(♀). Same as the male. Ovipositor long, moderately broad and blackish in the apical third; subgenital plate apically blackish and notched; cerci cylindrical, curved inward in the apical half and apically pointed.

Measurements.—Length: pronotum, ♂, 9 mm., ♀, 9.5 mm.; tegmina, ♂, 48 mm., ♀, 53 mm.; wing, ♂, 45 mm.; anterior femora, ♂, 13 mm.; ♀, 14 mm.; posterior femora, ♂, 27 mm., ♀, 29 mm.; anal styles, ♂, 5.5 mm.; ovipositor, 28 mm. Width: pronotum posteriorly, ♂, ♀, 6 mm.; tegmina mesially, ♂, 12 mm., ♀, 12.5 mm.; wings mesially, ♂, 36 mm.; posterior femora. at widest part, ♂, ♀, 6 mm.; ovipositor mesially, 4 mm.

Described from eight ♂♂ and eight ♀♀. Type, ♂, January, 1909. Schunke. Allotype, ♀, same date. Paratypes a, b, c, d, January, e, f, February, 1909, males, g, h, i, j, February, k, August, l, November, 1909, females.

Type, allotype, and paratypes d, e, g, h, and k in the collection of the U. S. National Museum; paratypes a, b, c, f, i, j and l in the collection of Iconnicoff.

Cat. No. 21331, U. S. Nat. Mus.

In the key given by Giglio-Tos, Boll. Mus. Torino, vol. xiii, No. 311, p. 95-97 (1898), the above species runs out to *festæ*. That species, however, has the base of the antennæ black while in the species here described the antennæ are yellowish brown.

Cocconotus nigroantennatus Brunner.

Cocconotus nigroantennatus Brunner, Monogr. Pseudoph., p. 207 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 335 (1906).

One ♂, three ♀ ♀, November 19, 21, and 29, 1916. Iconnicoff.

The tegmina of these specimens vary slightly in the infuscation of the crossveins and the ovipositor is apically infuscated in two of the females and concolorous in the third.

Cocconotus similis, new species.

An inconspicuous species allied to *modestus* Brunner from Guatemala and Honduras but distinguishable from that species as described by Brunner in having the subgenital plate apically deeply notched.

Description (♀, the ♂ unknown).—Head barely as broad as the front part of the pronotum; fastigium of the vertex very small, triangular, scarcely more than half as long as the antennal scrobæ, dorsally slightly sulcate and with a pair of prominent basal tubercles; beneath this fastigium is continuous with that of the face but projects somewhat beyond the junction, forming a broad rounded notch; eyes somewhat longer than broad and very prominent; antennal scrobæ well developed but much shorter than the basal segment of the antenna, beneath which they are continued as a transverse ridge; basal segment of the antenna with an apical tubercle on the inner dorso-lateral margin; pronotum wholly and densely covered with moderate sized, smooth, rounded tubercles, none of which are much if any more than one-half as high as broad; disk evenly rounded into the lateral lobes without indication of lateral carinæ except a slight shoulder on the metanotum; anterior margin of the pronotal disk truncate, the posterior margin broadly rounded; lateral lobes somewhat longer than high, lower margin straight and horizontal, front margin nearly vertical, the opposite one moderately slanting, the humeral sinus broad; legs moderately stout, the anterior femora about one and one-half times as long as the pronotum; anterior and intermediate tibiæ flat and unarmed above, beneath armed on both sides with several small spines; foramina shell-shaped, the sides not widely extended; posterior tibiæ armed above and below on both margins with several moderate sized spines, an apical spine above on the caudal side only; all the femora unarmed

above and with the geniculations unarmed except the caudal ones of the intermediate and posterior femora, which are distinctly spined; anterior and intermediate femora armed beneath on the cephalic margin only with three or four triangular spines; posterior femora armed beneath on the outer margin with seven stout spines, those toward the apex the larger and curved slightly backward. Organs of flight fully developed; tegmina five times as long as the pronotum, apically somewhat narrowly rounded, the radial veins very close together except near the base where they are separated by a space something over twice the width of one of them; wings about the same length as the tegmina and nearly as broad as long and very slightly fuliginous. Supraanal plate broadly triangular, apically rounded and dorsally shallowly and broadly concave; subgenital plate elongate and apically deeply cleft; cerci cylindrical, simple and moderately stout, about four times as long as broad, gently tapered to a point, and gently incurved, ovipositor moderately slender, three times as long as the pronotum, gradually tapering from the base to the sharply pointed apex, the upper margin very finely and bluntly serrate in the apical half.

General color yellowish brown; the femoral spines are piceous basally with the tips generally reddish yellow, the spines of the tibiæ are reddish yellow with infuscated tips.

Measurements.—Length: pronotum, 6.5 mm.; anterior femora, 9 mm.; posterior femora, 19 mm.; tegmina, 32 mm.; ovipositor, 18 mm. Width: pronotum posteriorly, 5.5 mm.; elytra mesially, 8.5 mm.; ovipositor mesially, 2.5 mm.

Described from one ♀, type, November, 1908. Schunke.

Type in the collection of the U. S. National Museum.

Cat. No. 21332, U. S. Nat. Mus.

Cocconotus angustatus Brunner.

Cocconotus angustatus Brunner, Monogr. Pseudoph., p. 210 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 336 (1906).

One ♂, January, 1909. Schunke.

Cocconotus variabilis, new species.

This is a somber-colored species running to section 1' of

Brunner's key, those forms having the intermediate tibiæ spined above. To place it further in the above-mentioned key would necessitate a general recast of the arrangement, a task not considered advisable at this time by reason of the lack of sufficient material to make such a recast satisfactory.

Description (♂).—Head smooth, about as broad as the front portion of the pronotum; eyes slightly elongate and quite prominent; fastigium of the vertex surpassed somewhat by the antennal scrobæ, elongate-triangular, narrowly rounded apically, longitudinally sulcate dorsally, the margins elevated basally into a pair of oblongly rounded tubercles with a light yellowish ocellar spot on the outer aspect; basal segment of the antennæ with an elevated apical tubercle on the inner dorsolateral margin, the second segment with a smaller basal tubercle; antennal scrobæ moderate, slightly surpassing the fastigium of the vertex; facial scutellum smooth, apically narrowing to a narrowly rounded fastigium separated from that of the vertex by a broadly rounded notch; just below the apex of the facial scutellum there is an oblong light yellowish spot similar to that on the outer aspect of the basal tubercles of the fastigium of the vertex. Pronotum entirely beset with coarse tubercles, the disk rounded into the lateral lobes without signs of lateral carinæ except slight shoulders on the metanotum; lateral lobes somewhat longer than high, lower margin straight and nearly horizontal, angles rounded, humeral sinus broadly rounded; pronotal disk very broadly rounded at both extremities, posteriorly mesially notched and almost truncate; posterior transverse sulcus very distinct, a little behind the middle; a short median carina on the posterior edge of the metanotum and a short longitudinal furrow at the point of crossing of the posterior transverse sulcus; prosternum with a pair of blunt thorns; meso- and metasternal lobes triangularly rounded; metasternal pits so close together as to be practically merged, a dividing ridge present only anteriorly. Legs moderately slender, the fore femora one and one-half times as long as the pronotum; anterior tibiæ perfectly flat above and unarmed, the foramina shell-shaped and but little inflated; beneath these tibiæ are armed with seven spines on each margin, those of each row nearly opposite the

others; middle tibiæ similar in ventral armature to the anterior ones but the spines less nearly opposite each other, above armed on the caudal margin only with four very small but distinct triangular teeth; posterior tibiæ armed above and beneath on both margins with black based spines, an apical one above on the caudal margin only; all femora unarmed above, the geniculations rounded except the caudal ones of the intermediate and posterior legs which are spined; anterior and intermediate femora armed beneath on the cephalic margin only with four short triangular spines; posterior femora strongly swollen in the basal two-thirds and armed beneath on the outer carina with five or six stout spines, those toward the apex the longer and somewhat curved. Organs of flight fully developed, the tegmina moderately slender and more than four times as long as the pronotum, considerably tapered in the apical half, the tip somewhat narrowly rounded; radial veins separated for most of their length by a distance equal to about twice the width of one of them; tympani small, that of the right tegmen transparent, that of the opposite one coriaceous, the stridulating vein not at all projecting beyond the inner margin; wings of about equal length with that of the tegmina and about as broad as long, very slightly fuliginous. Last abdominal segment apically very deeply and broadly incised, the margin fringed with fine long hairs; supraanal plate partly concealed but apparently broadly rounded apically; subgenital plate moderately elongate, triangularly notched apically and furnished with a pair of cylindrical slightly clavate and apically broadly rounded styles about four times as long as broad and, like most of the apical portion of the whole abdomen, covered with short pile; cerci cylindrical, short, scarcely four times as long as broad, apically moderately incurved and armed with a subapical chitinized tooth on the inner side.

General color yellowish brown; head infuscated on the occiput and the pronotum blackish on the metanotal shoulders from the posterior transverse furrow backward and across the full width of the posterior edge of the pronotal disk, the anterior margin of which is also narrowly blackish; spines of the legs piceous with the apices tinged with reddish, those of the an-

terior and intermediate femora almost wholly black; there is also a longitudinal black spot on the mesopleura.

(♀). Very similar to the ♂ in color and structure, the main differences observed being as follows: prosternal spines reduced to pointed tubercles and the meso- and metasternal lobes more broadly rounded; the left anterior femora has but three vertical teeth and the posterior femora have seven ventral teeth on one leg and eight on the other, the basal ones scarcely more than mere black tubercles; the caudal geniculations of the posterior femora are rounded and the corresponding ones of the intermediate femora are less sharply spined than in the case of the male. Cerci simple, about five times as long as broad, tapering to a point and incurved; supraanal plate mostly concealed in the allotype but probably agrees with that of the paratypic female, which is transverse and broadly rounded apically, slightly sulcate above; subgenital plate apically notched; ovipositor about twice as long as the pronotum, broad at the base and tapering gradually in a little more than the apical half to a point, the margins almost smooth. Color about as in the opposite sex but slightly less infuscated on the occiput; ovipositor of a reddish cast apically.

Measurements.—Length: pronotum, ♂, 5.5 mm., ♀, 6.5 mm.; anterior femora, ♂, 8.5 mm., ♀, 10 mm.; posterior femora, ♂, 18 mm., ♀, 20 mm.; tegmina, ♂, 29 mm., ♀, 31 mm.; ovipositor, 15 mm. Width: pronotum posteriorly, ♂, 4 mm., ♀, 4.5 mm.; tegmina at widest point, which is at about the basal third, ♂, 7.75 mm., ♀, 8 mm.; posterior femora at widest point, ♂, 4 mm., ♀, 4.5 mm.; ovipositor basally, 3.5 mm., mesially, 2.5 mm.

Described from one ♂ and two ♀♀. Type ♂, March 18, 1906. Iconnicoff. Allotype, ♀, March 12, 1906, Iconnicoff. Paratype, ♀, November 9, 1906. Iconnicoff.

Type and allotype in the collection of the U. S. National Museum; paratype in the collection of Iconnicoff.

Cat. No. 21333, U. S. Nat. Mus.

The paratype recorded above appears to be a stunted specimen, being somewhat smaller than the allotype. Besides the difference in size this specimen shows the following differences:

prosternal spines as long as in the male and the meso- and metasternal lobes as in that sex; anterior femora with three ventral spines and the posterior ones with six, one with a seventh represented by a black spot; anterior tibiæ with seven ventral spines on the cephalic margin of one leg and eight on the other, while the spines of the opposite margin are noticeably smaller and less oppositely placed than in the type material; here all the femoral geniculations are rounded and the color of the face, instead of being concolorous with the rest of the surface as in the type and allotype, is mesially largely pea-green. The measurements of this specimen are as follows: Length: pronotum, 6 mm.; anterior femora, 7.5 mm.; posterior femora, 15 mm.; tegmina, 24 mm.; ovipositor, 15 mm. Width: pronotum posteriorly, 4 mm.; tegmina at widest point, 5 mm.; posterior femora at widest point, 3.5 mm.; ovipositor mesially, 2.5 mm.

Nannotettix sp.

Three nymphs, two ♂♂ and one ♀, November 19, December 2 and 12, 1906. Iconnicoff.

In general appearance these immature specimens remind one of the species described from Peru under the name *Nannotettix paltaybama*¹ but the ovipositor of the female seems entirely too heavy for that species.

It may be well to here record the fact that after the description of *Nannotettix paltaybama*, based on the male only, was printed there was an adult female received from Huadquinia, Peru, also taken by the Yale Peruvian Expedition of 1911 but bearing no date. This specimen scarcely differs from the male type except that the pronotal disk has three longitudinal black spots anteriorly instead of being wholly black along that border. The ovipositor is moderately stout and quite gradually tapered to a sharp point. The posterior legs of this specimen are both missing. The measurements are as follows: Length: pronotum, 9 mm.; tegmina, 11 mm.; ovipositor, 17 mm.; width, pronotum posteriorly, 6 mm.; ovipositor mesially, 2.5 mm.

¹Caudell, A. N., Proc. U. S. Nat. Mus., vol. xlv, p. 351 (1913).

Macrochiton adjutor Brunner.

Macrochiton adjutor Brunner, Monogr. Pseudoph., p. 220 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 338 (1906).

Four ♀ ♀, October and November, 1908, and January, 1909, all by Schunke.

The ventral armature of the posterior femora exhibited by these four specimens is very variable, there being from one to five spines on the inner margin and the same range on the outer. The anterior femora are unarmed beneath on the caudal margin and armed on the cephalic margin with from one to three short spines; the middle femora are unarmed beneath on the caudal margin and also on the cephalic margin or armed there with a single small spine.

This somber colored long legged insect superficially resembles very closely the following species.

Leptotettix pubiventris Bolivar.

Leptotettix pubiventris Bolivar, An. Soc. Espan., vol. x, p. 493 (1881); Kirby, Syn. Cat. Orth., vol. ii, p. 339 (1906).

One ♂, October, 1908, one ♀, December, 1908, both by Schunke.

Except for sexual differences the female is essentially like the male. There is some variation in the ventral armature of the femora. Thus the right intermediate femora of the male has a single ventral spine of considerable size while in all others it is unarmed as in the type. The posterior femora have from two to four ventral spines and in both specimens now under consideration the anterior femora have but two ventral spines. The anterior tibiæ are a little shorter than indicated in the original description of the species. The measurements of the present pair are as follows:

Length: pronotum, ♂, 5.5 mm., ♀, 6 mm.; anterior femora, ♂, 13 mm., ♀, 13.5 mm.; posterior femora, ♂, 28 mm., ♀, 31 mm.; tegmina, ♂, 52 mm., ♀, 54 mm.; ovipositor, 22 mm. Width: pronotum posteriorly, ♂, 4 mm., ♀, 4.5 mm.; tegmina about the apical sixth, the widest point, ♂, 10.5 mm., ♀, 11 mm.; posterior femora at widest point, ♂, ♀, 4 mm.; ovipositor mesially, 3.75 mm.

The tympanum of the tegmina of this species are very small and that of the left one is wholly coriaceous and very inconspicuous.

Semileptotettix flagellata, new species. (Pl. II, fig. 17.)

Runs out to *vittatus* in Brunner's keys but is quite different from that species in several respects, especially size and the genital structure of the male.

Description (♂).—Head smooth, about as broad as the anterior portion of the prothorax; eyes circular and decidedly prominent; fastigium of the vertex very small, twice as long as broad, flat dorsally, barely attaining the tips of the antennal scrobæ and with a pair of prominent basal tubercles, the lateral aspect of which bear light yellowish ocellar spots; facial scutellum narrowed above and separated from the fastigium of the vertex by a broad rounded notch, an oblong yellowish ocellate spot near the vertex; antennal scrobæ well developed, continued beneath the antennæ as transverse ridges; basal segment of the antennæ armed with a prominent apical spine on the inner dorsolateral margin. Pronotum covered with small rounded tubercles; disk rounded into the lateral lobes without indication of lateral carinæ other than mere rounded shoulders on the metanotum, both margins rounded and with a small median light yellowish tubercle, the anterior margin with a few others lower down on the sides; transverse furrows distinct; lateral lobes about twice as long as high, the lower margin straight and horizontal; humeral sinus scarcely indicated; prosternum with a pair of triangular lobes; mesosternal lobes short, triangular, those of the metasternum rounded, not at all prolonged, scarcely developed; metasternum very noticeably narrowed posteriorly and the pits merged into one hole the sides of which are separated from the lateral margins of the sternum by a distance decidedly less than width of the hole. Legs long and slender; fore and middle tibiæ sulcate and unarmed above, below armed with several spines on both margins, foramina of anterior tibiæ shell-shaped, moderately expanded; posterior tibiæ armed above and beneath on both margins, an apical spine above on both margins; femora long and

slender; anterior femora nearly twice as long as the pronotum and, like also the middle ones, unarmed above and armed below on the cephalic margin only with three or four stout spines; hind femora about three times as long as the pronotum, moderately swollen in the basal three-fourths, unarmed above and armed beneath on the apical three-fourths on the cephalic margin with seven or eight stout spines, those toward the apex larger and apically bent moderately backward; all geniculations distinctly spined except the cephalic ones of the intermediate femora, which are rounded. Organs of flight fully developed; tegmina narrow with the margins about parallel, over four times as long as broad, apically very roundly subtruncate posteriorly; speculi small, membranous on the right tegmen and coriaceous on the left, the stridulating vein moderately thick, forming a very distinct rounded projection beyond the inner margin of the tegmen; wings broad and lightly fuliginous, the veins yellowish and the crossveins dark. Abdomen long and slightly compressed, the last dorsal segment broad and apically broadly concave; supraanal plate very roundly triangular, strongly declivate, sulcate dorsally; subgenital plate very elongate, longer than the pronotum, apically forming a mesially constricted shaft with the apex deeply divided, each branch a long sinuate flattened filament as long as the plate itself; these filaments, or flagellate processes, are evidently modified anal styles but they are not distinctly articulated, appearing to be prolongations of the apical forks of the subgenital plate and differentiated from the rest only by a darker color, as shown in Plate II, figure 17; cerci about five times as long as broad, cylindrical, gently tapered to a broadly rounded apex, curved moderately inward apically and furnished with a small chitinized subapical tooth, or tubercle, in the inner side.

Color uniformly yellowish brown with the last abdominal segment wholly piceous; the spines of the legs are blackish apically and those of the femora and of the ventral side of the hind tibiæ are blackish on the side toward the base of the leg; many of the crossveins of the tegmina are narrowly margined with black.

(♀). Essentially similar to the male in color and structure except that the cephalic geniculations of the intermediate femora are about as sharply spined as the caudal ones and the penultimate segment of the abdomen is laterally piceous. The ovipositor is long and heavy, over twice as long as the pronotum, the lower margin gently curved upward, and finely serrated for two-thirds of the length, the upper margin nearly straight only apically serrate and these scarcely discernibly so. The ovipositor is blackish in the apical half, especially the margins. Cerci simple, rounded, tapering in the apical fourth to a point. Subgenital plate subtriangular, a little longer than broad, the apex broadly rounded and entire. Supraanal plate blackish, triangular, and broadly sulcate dorsally.

Measurements.—Length: pronotum, ♂, 6 mm., ♀, 6.5 mm.; anterior femora, ♂, 11 mm., ♀, 12 mm.; posterior femora, ♂, 20 mm., ♀, 22 mm.; tegmina, ♂, 30 mm., ♀, 33 mm.; subgenital plate, ♂, including apical flanges, 10 mm., ♀, 3 mm.; cerci, ♂, 5 mm., ♀, 4 mm.; ovipositor, 18 mm. Width: pronotum posteriorly, ♂, 4 mm., ♀, 4.5 mm.; tegmina at middle, ♂, 7 mm., ♀, 8 mm.; posterior femora at widest point, ♂, 2.50 mm., ♀, 2.75 mm.; ovipositor at middle, 3 mm.

Described from one ♂ and one ♀. Type, ♂, January 12, 1906. Iconnicoff. Allotype, ♀, same date as the type.

Type and allotype in the collection of the U. S. National Museum.

Cat. No. 21334, U. S. Nat. Mus.

Arrhenotettix, new genus.

This is a member of Brunner's group *Cocconoti* and in his keys runs out to *Homalaspis*, from which it differs by having the genicular lobes of the anterior femora unarmed, by having the basal segment of the antenna apically tuberculate, by the shorter and broader ovipositor and in the armature of the legs, that of the ventral surface of the posterior femora of the male being very remarkable.

Description.—Head about as broad as the anterior part of the pronotum; face strongly retreating; fastigium of the vertex not attaining the tip of the antennal scrobæ, elongate-triangular,

dorsally sulcate and without distinct basal tubercles; eyes prominent; basal segment of the antennæ furnished apically on the inner side with a prominent acutely conical tubercle. Pronotum smooth, the disk rounded into the sides without a sign of lateral carinæ, the anterior and posterior margins broadly rounded; transverse sulci moderately developed; lateral lobes slightly developed, more than twice as long as high, the lower margins horizontal and a little turned outward; humeral sinus none; prosternum unarmed; meso- and metasternal lobes not prolonged, rounded, the pits of the metasternum merged into one almost circular hole. Tegmina short, a little more than twice as long as the pronotum, the tympanum of the male well developed but not very large, projecting somewhat beyond the inner margin of the tegmina, the stridulating vein stout and projected a little farther than the speculum as a rounded lobe similar to the type figured under the following genus (Pl. II, fig. 19); wings broad and slightly fuliginous, when closed just reaching the tips of the tegmina. Legs moderately slender, the anterior femora but little longer than the pronotum; all femora unarmed above, beneath armed with one to three spines on the cephalic margin only in the fore and middle legs and four on the posterior ones, the last two of which are much larger than the basal two, in the male the penultimate one being of unusual length, almost twice as long as the femoral depth at the point of attachment (Pl. II, fig. 18); genicular arcs of the posterior femora and the caudal one of the intermediate femora spined, the others rounded; all tibiæ armed beneath on both margins with several spines; anterior tibiæ flat and unarmed above, the foramina shell-shaped, moderately expanded; middle tibia armed above on the caudal margin only with several small spines; posterior tibiæ armed above on both margins for nearly the entire length, an apical spine on the caudal margin only. Abdomen plump and slightly compressed; subgenital plate of both sexes moderately narrowed apically and broadly notched, in the male each side bearing a cylindrical pointed style five or six times as long as broad; supraanal plate irregular, dorsally dimpled, or longitudinally sulcate; cerci of male stout, cylindrical, about twice as long as broad, apically broadly rounded

and with a small inner subapical tooth; ovipositor stout, about one and one-half times as long as the pronotum and moderately curved upward, apically very minutely serrate on each margin.

Type, *Arrhenotettix calcaratus*, new species.

Arrhenotettix calcaratus, new species. (Pl. II, fig. 18.)

Description (♂).—Structural characters as given in the generic description. General color reddish brown, the elytra with a more yellowish cast; spines of the legs with the extreme tips blackish; tympanum of the male with the speculum transparent on the right tegmen and coriaceous on the left.

(♀). Scarcely differing from the male except as noted in the generic description. The ovipositor is slightly darker in the apical half, especially along the margins.

Measurements.—Length: pronotum, ♂, ♀, 5.5 mm.; anterior femora, ♂, ♀, 7.5 mm.; posterior femora, ♂, 18 mm., ♀, 17 mm.; tegmina, ♂, 15 mm., ♀, 15.5 mm.; penultimate ventral spine of the posterior femora, ♂, 4 mm., ♀, 1.25 mm.; ovipositor, 10 mm. Width: pronotum posteriorly, ♂, ♀, 3.25 mm.; tegmina mesially, ♂, 4 mm., ♀, 3.75 mm.; posterior femora at widest point, ♂, 4.5 mm.; ♀, 4 mm.; at base of penultimate ventral spine, ♂, 2 mm., ♀, 1.5 mm.; ovipositor at middle, 2.25 mm.

Described from two ♂♂ and one ♀. Type, ♂, November 25, 1906, Iconnicoff. Allotype, ♀, December 3, 1906, Iconnicoff. Paratype, ♂, December 6, 1906, Iconnicoff.

Type and allotype in the collection of the U. S. National Museum; paratype in the collection of Iconnicoff.

Cat. No. 21335, U. S. Nat. Mus.

The cerci of the paratype are truncate apically instead of rounded, but this is obviously due to shrinkage in drying.

Hoplotettix, new genus.

This is apparently most nearly allied to *Nannotettix* but the armed basal segment of the antennæ and spined geniculations of the femora will serve to separate it readily from that genus.

Description.—Head of moderate size, no broader than the pronotum; fastigium of the vertex elongate triangular, twice as long as broad, apically pointed, dorsally sulcate, not quite

reaching the tips of the antennal scrobæ and with a pair of moderately elevated basal tubercles; eyes round and prominent; basal segment of the antennæ armed apically on the inner side with a stout spine. Pronotum rugose with a scattering of little-elevated rounded tubercles, the disk rounded into the lateral lobes without lateral carinæ except dull ones on the posterior three-fourths of the metazona; the pronotal disk is subtruncate posteriorly, the disk there flattened and with a short slight median carina, and very broadly and roundly angulate anteriorly and usually with a slight mesial swelling on the front margin; transverse sulci well developed, the posterior one very distinct; lateral lobes shallow, about twice as long as high and without humeral sinus, the lower margin thickened and straight, gently slanting upward from in front backward; prosternum with a pair of moderately long spines; meso- and metasternal lobes acutangulate, the latter more rounded; metasternal pits merged to form a single rounded opening. Organs of flight strongly abbreviated, the elytra scarcely twice as long as the pronotum and the wings scarcely longer. Legs long and slender, the anterior femora nearly twice as long as the pronotum; anterior tibiæ flat and unarmed above, beneath armed on both sides with several spines; foramina conchate, little expanded; middle tibiæ unarmed above on the cephalic margin, the opposite margin armed with from one to three short spines and armed beneath on both sides with several spines; posterior tibiæ armed above and below on both margins for most the length, an apical spine above on both sides; all femora unarmed above but with all the geniculations spined; anterior and intermediate femora unarmed beneath on the caudal margin, the opposite side with one or two spines; posterior femora armed beneath on the outer, or cephalic, margin only with six to eight spines in the apical two-thirds. Abdomen stout, subcompressed; subgenital plate of the male apically narrowed, deeply cleft, the side pieces cylindrical, about twice as long as broad and terminated by a pair of cylindrical blunt styles about four times as long as broad, of the female apically narrowed and with a V-shaped notch; supraanal plate of both sexes about as long as broad, apically broadly rounded, more so in the male,

where it is turned down to a vertical position; cerci of male cylindrical, simple, about four times as long as broad, apically suddenly constricted to a sharp naked inwardly directed spine; ovipositor short and stout, moderately curved upward and gradually tapered to a sharp point, the whole about twice as long as the pronotum and unarmed above and below, the ventral margin apically very minutely undulate.

Type, *Hoplotettix iconnicoffi*, new species.

Hoplotettix iconnicoffi, new species. (Pl. II, fig. 19.)

Description (♂, ♀).—Characters mostly stated in the generic description. General color dark brown, the legs, antennæ, and ovipositor somewhat lighter; the whole insect is sprinkled with inconspicuous yellowish dots, that being the color of the thoracic tubercles; the cerci and subgenital styles of the male light brown; wings moderately fuliginous, much shorter than the elytra but fully as broad; tympanum of right tegmen of the male with transparent speculum, that of the left one opaque, both of moderate size and projecting beyond the inner margin of the tegmen, the stridulating vein stout and forming a rounded angle with a triangular notch just beyond it, as common in this type of insect and described in other words under the genus *Arrhenotettix* and figured here. (Pl. II, fig. 19.)

Measurements.—Length: pronotum, ♂, 5.5 mm., ♀, 6 mm.; anterior femora, ♂, 10 mm., ♀, 11 mm.; posterior femora, ♂, ♀, 20 mm.; tegmina, ♂, 10 mm., ♀, 11 mm.; ovipositor, 12 mm. Width: pronotum posteriorly, ♂, ♀, 3 mm.; tegmina mesially, ♂, 3.5 mm., ♀, 4 mm.; posterior femora at widest point, ♂, 3.75 mm., ♀, 4 mm.; ovipositor at the base, 3 mm., mesially, 2 mm.

Described from three ♂♂ and one ♀. Type, ♂, November 29, 1906, Iconnicoff. Allotype, ♀, December 1, 1906, Iconnicoff. Paratypes a and b, November 13 and December 15, 1906, Iconnicoff.

Type and allotype in the collection of the U. S. National Museum; paratypes in the collection of Iconnicoff.

Cat. No. 21336, U. S. Nat. Mus.

The paratypes are of about equal size and average slightly

smaller than the type. Otherwise they offer no variation from the type.

Diophanes salvifolia Lichtenstein.

Locusta salvifolia Lichtenstein, Cat. Mus. Hamburg, vol. iii, p. 82 (1796); *Diophanes salvifolia* Kirby, Syn. Cat. Orth., vol. ii, p. 345 (1906).

Two ♀ ♀, January and February, 1909. Schunke.

Typophyllum undulatum, new species. (Pl. IV, fig. 20.)

This is an inconspicuous form in some respects allied to the species of the genus *Mimetica*, especially in the posteriorly notched pronotal disk.

Description (♀, the ♂ unknown).—Head roughened by small granular tubercles; face flat, the scutellum narrowed above and disappearing between the oppressed apices of the moderately developed and somewhat elevated antennal scrobæ; fastigium of the vertex small and triangular, dorsally sulcate, slightly elevated and fitted closely between the antennal scrobæ and not nearly attaining their tips; eyes slightly irregularly rounded and very moderately prominent, behind each a slightly elevated colored line representing lateral carinæ continuous with those of the pronotum; antennæ with the basal segment large, flat above, the second segment considerably smaller and somewhat shorter, the succeeding ones cylindrical, the joints not very conspicuous. Pronotum slightly concave dorsally, the disk slightly narrower anteriorly than posteriorly, the anterior margin slightly and broadly concave, the posterior margin very broadly angulate and with a small mesial notch; lateral carinæ sharp and straight, somewhat roughened by tubercles; lateral lobes nearly quadrate, the lower and anterior margins broadly rounded, the former nearly horizontal, the hind margin straight to the deep but obtuse sinus; prosternum unarmed, meso- and metasterni armed with a pair of short acute spines, the pits merged. Organs of flight fully developed; tegmina shaped as shown in Plate II, figure 20, and very closely resembling a leaf, there being even a transparent fungus-like spot in the middle of the posterior field; wings very broad apically and rounded, the costal margin considerably curved upward;

posterior radial vein stout; ulnar vein branching at about the middle; legs stout and lobately armed; anterior tibiæ wholly unarmed, the foramina conchate, little expanded and not extending above the dorsal surface of the tibiæ; middle and hind tibiæ unarmed beneath, above furnished with a few apically rounded flattened projections on each margin, the posterior ones with a broad one near the base, no apical spines but with a single pair of ventral calcaria, short and stout; the middle tibiæ are very much broadened in the basal two-thirds; anterior and intermediate femora compressed, about four times as long as broad, unarmed above, beneath armed on the cephalic margin with four very broad, flat, triangular teeth and on the opposite margin with one or two small tubercles; posterior femora not strongly swollen basally, unarmed above, beneath on the cephalic margin with three large flat triangular spines in the distal half and with five or six small ones on the proximal half, the opposite carinæ with five or six very small sharp spines in the apical two-thirds, the basal ones very short, mere tubercles in fact; all geniculations unarmed. Abdomen flattened, the 2, 3 and 7 segments dorsally somewhat lamellately compressed and slightly prolonged posteriorly; supraanal plate slightly broader than long, dorsally roundly convex and apically broadly rounded; subgenital plate a little broader than long, posteriorly narrowed and apically with a broad mesial notch; cerci simple, no more than twice as long as broad, suddenly constricted mesially to less than half the basal width; ovipositor one and one-half times as long as the pronotum, curved strongly upward in the basal third and apically gently enlarged, the upper margin bluntly serrate in a little more than the apical half, the serration of the apical fourth or fifth larger and forming a double row; the lower margin is tuberculously serrate in the apical half, the teeth larger apically and covering also the lateral surfaces of the lower valves.

Measurements.—Length: pronotum, 6 mm.; anterior femora, 6 mm.; posterior femora, 16 mm.; tegmina, 35 mm.; wings, 25 mm.; ovipositor, 9.5 mm. Width: pronotum poste-

riorly, 5 mm.; tegmina mesially, 17 mm.; posterior femora at widest point, 2.5 mm.; ovipositor mesially, 1 mm.

Described from one ♀, the type, September, 1908. Schunke. Type in the collection of the U. S. National Museum.

Cat. No. 21337, U. S. Nat. Mus.

Chlorophylla rufipes Brunner.

Chlorophylla rufipes Brunner, Monogr. Pseudoph., p. 266, pl. x, fig. 116 (1895); Kirby, Syn. Cat. Orth., vol. ii, p. 353 (1906).

Two ♀ ♀, November, 1908, and October, 1909. Schunke.

Subfamily MECOPODINÆ

Rhammatopoda opilionoides Redtenbacher.

Rhammatopoda opilionoides Redtenbacher, Verhandl. zool.-bot. Ges. Wien, vol. xlii, p. 203, pl. iii, fig. 6 (1892); Kirby, Syn. Cat. Orth., vol. ii, p. 360 (1906).

Rhammatopoda redtenbacheri Bolivar, Ann. Mus. Nat. Hung., p. 169 (1903).

Two ♂ ♂, two ♀ ♀, November 2, 9, 16, and December 12, 1916. Iconnicoff.

Tabaria opilionoides Walker, the type of which was examined by the writer in 1913, is amply distinct from the above species both generically and specifically. Thus the substitution by Bolivar of the specific name *redtenbacheri* for Redtenbacher's species is unwarranted and this name accordingly falls in the synonymy.

Subfamily PHANEROPTERINÆ

Dysonia elegans Brunner.

Aphidnia elegans Brunner, Monogr. Phaneropt., p. 155 (1878);

Dysonia elegans Kirby, Syn. Cat. Orth., vol. ii, p. 411 (1906).

One ♀, November, 1908. Schunke.

Dysonia punctifrons Brunner.

Aphidnia punctifrons Brunner, Monogr. Phaneropt., p. 154 (pl. iii, fig. 40a, b (1878); *Dysonia punctifrons* Kirby, Syn. Cat. Orth., vol. ii, p. 412 (1906).

One adult ♀, no date, one immature ♂, May 3, 1908. Schunke.

Insara peruviana Brunner.

Hormilia peruviana Brunner, Verhandl. zool.-bot. Ges. Wien, vol. xli, p. 117 (1891); *Insara peruviana* Kirby, Syn. Cat. Orth., vol. ii, p. 443 (1906).

One ♂, no date, one ♀, September 7, 1906. Iconnicoff.

Ceraia dentata Brunner.

Scudderia dentata Brunner, Monogr. Phaneropt., p. 243 (1878);
Ceraia dentata Kirby, Syn. Cat. Orth., vol. ii, p. 451 (1906).

Three ♂♂, three ♀♀, October 16, 1906, Iconnicoff, and October, November and December, 1908, Schunke.

The female of this species, which I believe has never been described, shows no characters differing essentially from those of the male. The ovipositor is nearly twice as long as the pronotum and apically rounded and dentate. The measurements of this sex are as follows:

Length: pronotum, 5.5 to 6 mm.; tegmina, 38 to 40 mm.; posterior femora, 26 to 28 mm.; ovipositor, 10 to 11 mm. Width: tegmina at widest part, 8 mm.; ovipositor mesially, 2 mm.

The color of this species as represented by the six specimens here recorded varies from decidedly greenish to reddish brown, the latter very likely due, at least in part, to changes after death. There are a few obscure dots along the middle of the tegmina of all the specimens, noticeable only under a glass.

Plagiopleura gracilis Brunner.

Euthyrrhachis gracilis Brunner, Monogr. Phaneropt., p. 331, pl. vii, fig. 96 (1878); *Plagiopleura gracilis* Brunner, Verhandl. zool.-bot. Ges. Wien, vol. xli, p. 132 (1891); *Euthyrrhachis gracilis* Kirby, Syn. Cat. Orth., vol. ii, p. 452 (1906).

One ♀, no date. Schunke.

There seems little question as to the synonymy of the genus *Euthyrrhachis* with *Plagiopleura* and Kirby's use of it as a distinct genus appeared indefensible. Brunner himself very clearly states that it is to be dropped (Verh. zool.-bot. Ges. Wien, vol. xli, p. 177 (1891)), though his statement there that the only species is a *Parableta* is an error, what he intended to write being really *Plagiopleura* instead of *Parableta*, as shown

by his reference of it to the former genus on page 132 of the same work.

Scaphura nitida Perty.

Scaphura nitida Perty, Del. Anim. Art., p. 121, pl. xxiii, fig. 12 (1834); Kirby, Syn. Cat. Orth., vol. ii, p. 453 (1906).

Aganacris micans Walker, Cat. Derm. Salt. Brit. Mus., vol. v, Suppl., p. 41 (1871).

One ♀, August, 1908. Schunke.

Walker's *Aganacris micans* is here placed in synonymy under *Scaphura nitida* Perty. Walker's type was examined in 1913 and notes made at the time indicate this synonymy.

Scaphura sp.

One ♂, August, 1908. Schunke.

This specimen, which lacks antennæ, may be a variety of some of the several forms now listed under the name *vigorsi* Kirby or *nigra* Thunberg. It is very like the specimen figured by Perty as *Scaphura ferruginea* except there is a fuliginous area in the posterior apical field of the wings, narrowly continued along the anal margin more than halfway to the base.

Stilpnochlora incisa Brunner.

Stilpnochlora incisum Brunner, Monogr. Phaneropt., p. 361 (1878); *Microcentrum incisum* Kirby, Syn. Cat. Orth., vol. ii, p. 456 (1906).

Five ♀♀, October, 1908, January and May 11, 1909. Schunke.

Peucestes striolatus Brunner.

Peucestes striolatus Brunner, Monogr. Phaneropt., p. 366 (1878); Kirby, Syn. Cat. Orth., vol. ii, p. 458 (1906).

Four ♀♀, October and November, 1908, April and August, 1909. Schunke.

These specimens agree with Brunner's diagnosis except that there is barely a trace of transverse fuscous lines on the tegmina, in which respect they agree with the figure by Stoll, Repr., etc., pl. IVa, fig. 12 (1813), which Saussure and Zehntner, Biol. Cent. Amer., Orth., vol. i, p. 372 (1898), refers to this species.

Posidippus irregulariterdentatus Brunner.

Posidippus irregulariterdentatus Brunner, Verh. zool.-bot. Ges. Wien, vol. xli, p. 186 (1891); Kirby, Syn. Cat. Orth., vol ii, p. 459 (1906).

One ♀, Iquitos, Peru, February, 1907. Iconnicoff.

This specimen agrees very well with the description of the male except that it is a little larger, as might be expected, and the intermediate tibiæ are armed dorsally on the caudal margin only.

Posidippus fastigosus Brunner.

Posidippus fastigosus Brunner, Monogr. Phaneropt., p. 370 (1878); Kirby, Syn. Cat. Orth., vol. ii, p. 459 (1906).

One ♀, March, 1909. Schunke.

Anaulacomera apicidentata, new species. (Pl. II, fig. 21.)

An inconspicuous green species apparently most nearly allied to *A. dentata*, to which species it runs out in Brunner's key. The cerci of the male, however, seem to distinguish the two species, the inner tooth in *dentata* being mesial while in the species here described it is apical.

Description (♂).—Fastigium of the vertex sulcate dorsally, constricted mesially and apically a little elevated, meeting somewhat broadly the roundly pointed facial fastigium; front rounded, not laterally carinate, barely dimpled laterally. Pronotal disk flat but the lateral carinæ broadly rounded, the lateral lobes about equally high as long. Tegmina and wings presenting no peculiarities. Anterior and intermediate tibiæ rounded above and armed only with a small apical spine on the caudal margin, the intermediate one with a second very minute one near the base on the right leg only. Last dorsal segment of the abdomen roundly concave apically; supraanal plate rounded triangular; cerci short and stout, about six times as long as basally wide, cylindrical, curved gently inward and armed near the tip on the inner side with a blunt triangular tooth, as shown at figure 21.

(♀). Resembling the male. The ovipositor is uniformly curved upward and tapers in the apical fourth to a point, the basal three-fourths uniform in width, the margins of the apical

half very finely serrate. The armature of the legs is as in the male except there is no basal spine on either of the intermediate tibiæ.

Measurements.—Length: pronotum, ♂, ♀, 4 mm.; tegmina, ♂, 25 mm., ♀, 26 mm.; posterior femora, ♂, 18 mm., ♀, 15.5 mm.; cerci, ♂, 2 mm., ♀, 1.5 mm.; ovipositor, 8 mm. Width: tegmina at middle, ♂, 4.5 mm., ♀, 5 mm.; ovipositor mesially, 1.5 mm.

Described from two specimens: type ♂, September 11, 1906; allotype ♀, November 3, 1906. Both by Iconnicoff.

Type and allotype in the collection of the U. S. National Museum.

Cat. No. 21338, U. S. Nat. Mus.

Anaulacomera diluta Brunner.

Anaulacomera diluta Brunner, Verh. zool.-bot. Ges. Wien, vol. xli, p. 145 (1891); Kirby, Syn. Cat. Orth., vol. ii, p. 466 (1906).

One ♀, July 9, 1906. Iconnicoff.

This specimen has an apical spine on the caudal margin of the anterior and intermediate tibiæ and the latter have also three or four additional ones on the same margin.

Anaulacomera cercalis, new species. (Pl. II, fig. 22.)

This inconspicuous green species is allied to *sulcata* and *securifera* but the cerci of the male differ decidedly from those of either of these.

Description (♂).—Head as described above under *apicidentata*. The legs are also much as in *apicidentata*, even as to the second dorsal spine of the intermediate tibiæ being absent on one leg. The last dorsal segment of the abdomen is broadly rounded apically, above broadly and shallowly concave; supra-anal plate triangular, the apex rounded; cerci long and conspicuously branched; the basal portion is slightly flattened in the inner side, the apical portion conspicuously so, this apically compressed portion furnished beneath with two broad dull deflexed teeth and a more apical one very short and blunt and turned outward; the tip of the cercus itself is flattened, broad and pointed; at the basal fourth on the inner side is a broad vertically flattened appendage one-half as long as the main

body of the cercus and directed at a right angle to the main body; this appendage expands somewhat apically and is dorso-apically deeply notched, forming a sort of open monkey-wrench appearance and bearing toward the base a tubercle; this remarkable cercus is hard to describe adequately and difficult to figure properly, though the general structure and appearances is shown with some accuracy at figure 22.

(♀). Very like the male. The ovipositor is decidedly longer than the pronotum, gently curving upward apically, widest in the apical fourth, sides smooth, the margins very finely serrate in the apical half, more distinctly so apically.

Measurements.—Length: pronotum, ♂, 3.5 mm., ♀, 4 mm.; tegmina, ♂, 25 mm., ♀, 28 mm.; posterior femora, ♂, 14 mm., ♀, 17 mm.; cerci, ♂, 4 mm.; ovipositor, 9 mm. Width: pronotum posteriorly, ♂, ♀, about 2.25 mm.; tegmina mesially, ♂, 4.75 mm., ♀, 5 mm.; ovipositor mesially, 1.75 mm.

Described from five specimens: type ♂, October 19, 1906, Iconnicoff; allotype ♀, November 8, 1906, Iconnicoff; paratypes a and b, ♂ ♂, September, 1908, and January, 1909, Schunke; paratype c, ♀, November 11, 1906, Iconnicoff.

Type, allotype, and paratype a in the collection of the U. S. National Museum; paratypes b and c in the collection of Iconnicoff.

Cat. No. 21339, U. S. Nat. Mus.

? **Anaulacomera harpago** Brunner.

Anaulacomera harpago Brunner, Monogr. Phaneropt., p. 284 (1878); Kirby, Syn. Cat. Orth., vol. ii, p. 468 (1906).

One ♀, October 3, 1906. Iconnicoff.

This single female is placed here with much doubt. It is smaller than might be expected for this species. The measurements are as follows: Length: pronotum, 3 mm.; tegmina, 18 mm.; posterior femora, 14.5 mm.; ovipositor, 6 mm.; width, pronotum posteriorly, 2 mm.; tegmina mesially, 3 mm.; ovipositor mesially, 1.5 mm.

Anaulacomera schunkei, new species.

Description (♂).—Essentially as in *cercialis* except the structure of the cerci and even here the structure is of the same gen-

eral type. The subbasal inwardly directed projection is relatively somewhat longer than in *cercialis* and considerably broader apically, but of a similar shape; apically the cercus is irregularly and considerably compressed, the tip divided into two parts, the lower one triangular basally and cylindrical toward the end, the apex rounded and ciliate, the whole directed inward; the upper branch is flattened vertically, not quite so long as the lower one and the tip pointed or narrowly rounded, the whole in nearly a line with the basal portion of the cercus; just basad of this apically broadened and forked portion of the cercus there are a couple of acute tubercles, one above and one beneath.

(♀). Similar to *cercialis* except the ovipositor is shorter and not broadened toward the middle.

Measurements.—Length: pronotum, ♂, ♀, 3.5 mm.; tegmina, ♂, ♀, 24 mm.; posterior femora, ♂, ♀, 15 mm.; cercus, ♂, 3.5 mm.; ovipositor, 7 mm. Width: tegmina mesially, ♂, ♀, 4.5 mm.; ovipositor mesially, 1.5 mm.

Described from eight specimens. Type ♂, allotype ♀, October, 1908, Schunke; paratypes a and b, ♂♂, August and September, 1908, c, d, e, and f, ♀♀, October, 1908, August, 1909, and two without dates, all by Schunke.

Type, allotype, and paratypes a and c in the collection of the U. S. National Museum; paratypes b, d, e, and f in the collection of Iconnicoff.

Cat. No. 21340, U. S. Nat. Mus.

Anaulacomera longicercata, new species.

Another species differentiated from its allies by the characters of the cerci of the male.

Description (♂).—In general appearance similar to the last. Head with the sides of the front longitudinally and broadly depressed, the margins somewhat abrupt, tending to make the front laterally carinate; fastigium of the vertex narrow, scarcely more than one-half as broad as one of the basal antennal segments, mesially constricted, the broader apex broadly rounded, the whole narrowly sulcate dorsally and beneath tapered and meeting the facial fastigium in a point. Pronotum

with the lateral lobes about as long as high and rounded into the disk without distinct lateral carinæ except on the metazona where they are more developed; humeral sinus very well developed. Anterior and intermediate tibiæ armed above with a small apical spine on the caudal margin only. The cerci are conspicuous in length, are curved moderately inward and considerably compressed, especially in the apical half; this apical compressed portion is deeply undulately dentate beneath to form three rounded lobes, the terminal one forming the tip of the cercus; at about the basal fifth of the cercus there are two heavy inwardly directed projections situated one above the other, the lower one rounded and apically sharp pointed, the upper one situated a little basad of the lower one and about twice as long and much depressed, the apex rounded; the dorsal surface of the main body of the cercus has a couple of slight undulations near the middle.

(♀). Similar to the male but the fastigium of the vertex is somewhat broader, being a little more than one-half as broad as one of the basal segments of the antenna. The ovipositor is a little longer than in the last species.

The color is a uniform dull green; the dorsal spines of the hind tibiæ are black in the male and reddish brown in the female and the tympani of the male have the heavy veins somewhat infuscated.

Measurements.—Length: pronotum, ♂, 3 mm., ♀, 4 mm.; tegmina, ♂, 23.5 mm., ♀, 27 mm.; posterior femora, ♂, 17 mm., ♀, 18 mm.; cerci, ♂, 5 mm.; ovipositor, 10 mm. Width: tegmina mesially, ♂, 4 mm., ♀, 5 mm.; ovipositor mesially, 2 mm.

Described from seven specimens: type ♂, allotype ♀, November, 1908; paratypes a and b, ♂♂, October, 1908, and May, 1909, and c, d, and e, ♀♀, November, 1908, and two without dates. All by Schunke.

Type, allotype, and paratypes a and d in the collection of the U. S. National Museum; paratypes b, c, and e in the collection of Iconnicoff.

Cat. No. 21341, U. S. Nat. Mus.

Anaulacomera simplex, new species. (Pl. II, fig. 23.)

This apparently undescribed form is most nearly allied to *A. erinifolia* Brunner but is separable at a glance from that species by the smaller size and by the absence of black maculation in the anterior tibiæ. It also shows close relationship to *A. boliviana* Brunner but its size and the more distinctly carinate front separates it from that Bolivian form.

Description (♂, the ♀ unknown).—Head with the sides of the front longitudinally and broadly depressed, the margins somewhat abrupt, tending to make the front laterally carinate; fastigium of the vertex very narrow, much less than half as wide as one of the basal segments of the antennæ, tapering to a narrow rounded tip, above distinctly but not deeply sulcate. Lateral lobes of the pronotum about as high as long and rounded into the disk without distinct lateral carinæ except on the metazona. Anterior and intermediate tibiæ with a small dorsal spine on the caudal margin and the intermediate ones with three additional ones. Abdomen with the last dorsal segment apically truncate; supraanal plate deflexed, apparently triangular; subgenital plate longer than broad, narrowing apically and with the tip notched, each angle prolonged as a very short unsegmented style; cerci short, simple, incurved, tapering gradually to a moderately sharp and somewhat abruptly curved point as shown in Plate II, figure 23.

Color yellowish green, the elytra with a few dusky spots and the entire insect, body, legs, and antennæ, sprinkled with reddish dots so small as to be scarcely visible to the unaided eye.

Measurements.—Length: pronotum, 4 mm.; tegmina, 25 mm.; posterior femora, 15 mm.; cerci, 2.5 mm.; width: tegmina mesially, 4 mm.

Described from one specimen, type ♂, no date. Schunke.

Type in the collection of the U. S. National Museum.

Cat. No. 21342, U. S. Nat. Mus.

Viadana rhombifolia Brunner.

Ctenophlebia rhombifolia Brunner, Verh. zool.-bot. Ges. Wien, vol. xli, p. 156 (1891); *Viadana rhombifolia* Kirby, Syn. Cat. Orth., vol. ii, p. 472 (1906).

Two ♂♂, three ♀♀; October 11 and November, 1908, and September, 1909. Schunke.

Viadana lobata Brunner.

Ctenophlebia lobata Brunner, Monogr. Phaneropt., p. 303 (1878);
Viadana lobata Kirby, Syn. Cat. Orth., vol. ii, p. 471 (1906).

One ♂, November 11, 1906. Iconnicoff. One ♀, November, 1908. Schunke.

The male shows no peculiarities and is of about the same size as the female.

Phylloptera famula Brunner.

Phylloptera famula Brunner, Monogr. Phaneropt., p. 313 (1878);
Kirby, Syn. Cat. Orth., vol. ii, p. 474 (1906).

One ♂, August, 1908. Iconnicoff.

? **Arota rosaura** Karsch.

Arota rosaura Karsch, Soc. Ent., p. 89 (1891); Kirby, Syn. Cat. Orth., vol. ii, p. 476 (1906).

Two ♀♀, October, 1908, and March, 1909. Schunke.

These specimens are a little smaller than the measurements given in the original description but otherwise they seem to fit the specifications of this species very well. The anterior and intermediate tibiæ are spined above on both margins, a character at variance with those attributed to the genus and one not mentioned in the original description of the species. However, until further information is available, it is deemed best to refer these specimens to this species. The specimen taken in 1908 is green in color, especially the elytra, while the other one is brownish, with greenish tinge.

Family GRYLLIDÆ

Subfamily GRYLLOTALPINÆ

Neocurtilla hexadactyla Perty.

Grylotalpa hexadactyla Perty, Del. Anim. Art., p. 119, pl. xxiii, fig. 9 (1832); *Neocurtilla hexadactyla* Kirby, Syn. Cat. Orth., vol. ii, p. 2 (1906).

One ♂, November 4, 1906. Iconnicoff.

The specimen is very small, the pronotum measuring but 7 mm. in length. The tegmina cover about one-half of the abdomen and the wings are barely caudate.

Subfamily GRYLLINÆ

? *Gryllus capitatus* Saussure.

Gryllus pusillus Burmeister, Handb. Ent., vol. ii, p. 733 (1838);
Kirby, Syn. Cat. Orth., vol. ii, p. 36 (1906).

One ♀, no date. Schunke.

This yellowish brown female cricket is determined as *capitatus* with considerable doubt. In its present state of chaos the genus *Gryllus* is unwieldy and the numerous species are for the most part almost inseparable.

This specimen has the tegmina, the legs, the sternum, and the apical half of the ovipositor yellowish brown, also the lower part of the head, including the mouth parts; the rest of the insect is black. The anterior tibiæ have foramina on both sides, that on the inner side distinct but less than half as large as that on the opposite side. The tegmina extend to the end of the abdomen and the wings are caudate. The ovipositor is less than one and one-half times as long as the posterior femora. The pronotum is distinctly broader than long and is distinctly rounded posteriorly. The measurements are as follows: Length: pronotum, 5 mm.; tegmina, 16 mm.; wings beyond the tip of the tegmina, 12 mm.; posterior femora, 14 mm.; ovipositor, 18 mm. Width: pronotum, 7 mm.

This species, as well as a number of others now standing in the lists as distinct forms, may eventually prove to be the same as *assimilis*, or of no more than varietal distinctness, as has already been recorded as true of this species by Rehn, 2 Rept. Estac. Centr. Agron., p. 219 (1909).

? *Gryllus peruviansis* Saussure.

Gryllus peruviansis Saussure, Miss. Mex., Orth., p. 406 (1874);
Kirby, Syn. Cat. Orth., vol. ii, p. 28 (1906).

One ♀ nymph, August 30, 1906. Iconnicoff.

Miogryllus pusillus Burmeister.

Gryllus pusillus Burmeister, Handb. Ent., vol. ii, p. 733 (1838);
Miogryllus pusillus Kirby, Syn. Cat. Orth., vol. ii, p. 38 (1906).

One ♂, September 8, 1906; one ♀, September 10, 1906. Iconnicoff.

Miogryllus convolutus Johansson.

Gryllus convolutus Johansson, Amoen. Acad., vol. vi, p. 399 (1763); *Miogryllus convolutus* Kirby, Syn. Cat. Orth., vol. ii, p. 39 (1906); Hebard, Journ. N. Y. Ent. Soc., vol. xxiii, p. 105 (1915).

Grylloides brevipennis Saussure, Miss. Mex., Orth., p. 418 (1874); *Miogryllus brevipennis* Kirby, Syn. Cat. Orth., vol. ii, p. 39 (1906); Hebard, Journ. N. Y. Ent. Soc., vol. xxiii, p. 105 (1915).

One ♀, September 10, 1906. Iconnicoff.

Subfamily OECANTHINÆ

Amusus kirschianus Saussure.

Amusus kirschianus Saussure, Mem. Soc. Genève, vol. xxv, p. 409 (1878); Kirby, Syn. Cat. Orth., vol. ii, p. 65 (1906).

Three adult ♀ ♀, two on November 14, 1906, and one on December 3, 1906; one ♀ nymph; November 16, 1906. All by Iconnicoff.

The above nymph may not belong here, the anterior and intermediate femora being black and with three distinct yellowish bands, the corresponding tibiæ similarly but less distinctly marked. The pronotum of this specimen is also marked with light yellowish mottlings, tending toward the *Amusus festæ* of Giglio-Tos. One of the adults recorded above also varies somewhat toward *festæ*, which may indeed be but a form of *kirschianus*.

Endacusta maculata, new species.

A conspicuously mottled species related to *aztecus* Saussure but differing in the smaller tegmina of the male and the larger size of both sexes.

Description (♂ and ♀).—A fairly robust species, densely pilose and with moderately long legs. Head short, vertical, the mouth ventral; palpi long, the apical segment much longer than either of the others and abruptly swollen in the apical fourth, the apex diagonally truncate; vertex very narrow, not more than one-half as broad as the basal segment of the antenna;